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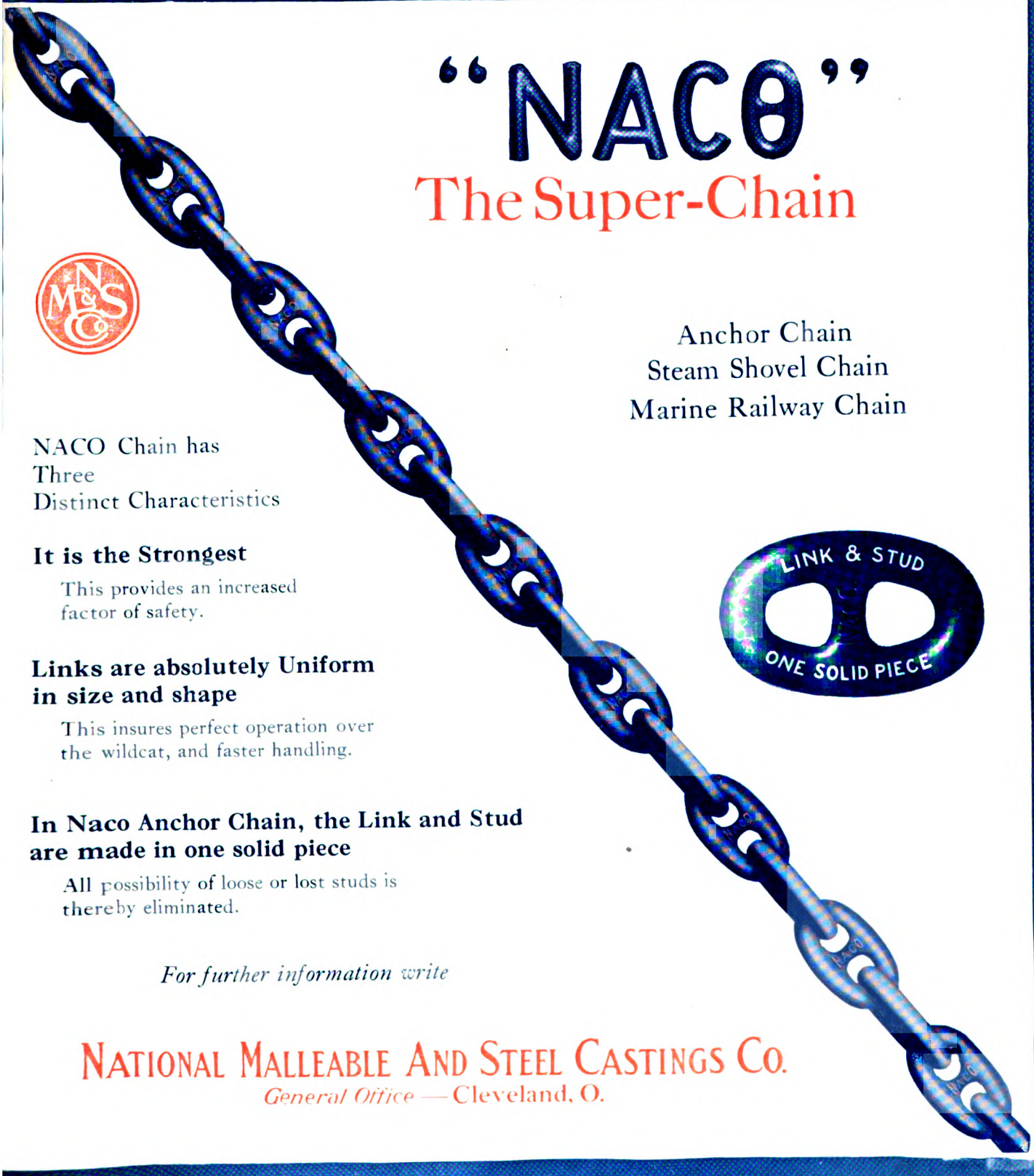

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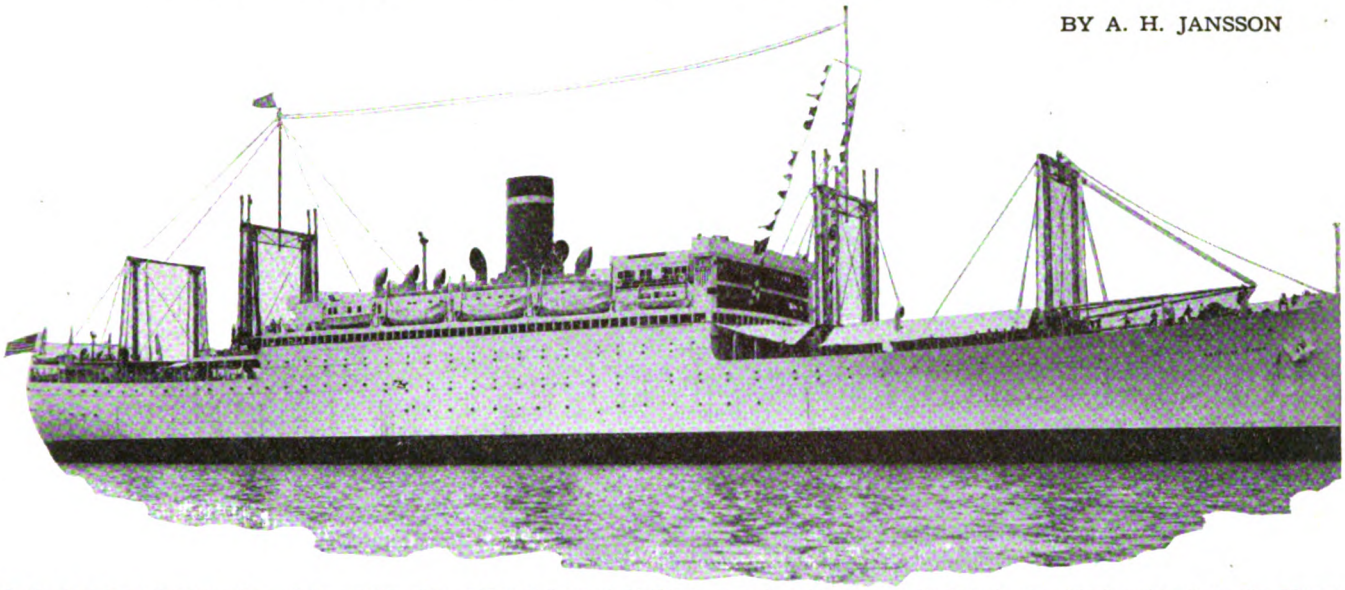
Munson Buys Pan America Line

Most Important Link in Overseas Service

BY A. H. JANSSON



S. S. AMERICAN LEGION—One of four sister ships 535 feet long of 14,000 tons each sold by the United States shipping board to the Munson Steamship line for operation between New York and East Coast South American ports

ON NOV. 12 the United States shipping board by a vote of six to one confirmed the sale of the Pan America Line to the Munson Steamship Line of New York for $4,104,000. The sale includes the four liners, AMERICAN LEGION, SOUTHERN CROSS, WESTERN WORLD and PAN AMERICA which have been in continuous operation by the Munson Line for the United States shipping board in the service between New York and the East Coast of South America since they came out early in 1921 and 1922.

No other service inaugurated by the government is of greater importance to the future welfare of the nation as a builder of trade and good will. This line has been of the greatest value in opening up the markets of the fast growing and potentially rich countries of South America. Not to have direct and regular communication by first class American ships between these markets and our own would mean an insurmountable handicap in competing with other nations for this trade. The good work already done is reflected in better relations and in increased commerce and travel.

FRANK C. MUNSON
President Munson Steamship Line

It may be of interest to recapitulate here the various steps in starting this service. In 1919 no regular American passenger line existed between the United States and the East Coast of South America. The government had as a result of the war come into possession of a number of German and Austrian merchant ships. It was decided to inaugurate a passenger service. The Munson Steamship Line on its own initiative had some time before this planned a freight liner service from New York to South America and two of four cargo vessels constructed in 1917 were named MUNDELTA and MUNAIRES, indicating by their names the services they were intended for. The war of course interfered with these plans but they were resumed and carried into effect soon thereafter.

In looking for a responsible competent operator for the projected passenger service to South America the shipping board selected the Munson Line, with its established South American connections and its general reputation of long standing as a successful and thoroughly American steamship line, as best fitted to assume the responsibilities of managing the service. Since no new ships were available several ex-German vessels were used. The first one chosen, the Prince Joachim, renamed the Moccasin, was converted to burn oil and otherwise elaborately reconditioned in the winter of 1919-1920 at Tietjen & Lang's yard in Hoboken. She was too small and much too slow

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and in practically every respect a misfit. She was soon withdrawn and was followed during 1920 by the CALLAO, MARTHA WASHINGTON, HURON and AEOLUS, all elaborately reconditioned at great expense. These vessels maintained a regular and fairly satisfactory service until they were replaced by the AMERICAN LEGION and SOUTHERN CROSS in the spring of 1921 and the WESTERN WORLD and PAN AMERICA early in 1922; the four vessels now purchased by the Munson Line.

These vessels were originally laid down by the United States government for the purpose of transporting troops and materials during the Great war but as their construction had not progressed very far before it was seen that they would not be needed for this purpose, necessary alterations were made in their plans to make them suitable for the passenger liner trade. They are 535 feet in length, 72 feet in beam and 50 feet in depth, of 14,000 gross tons with a displacement of 22,000 tons and a deadweight tonnage of 11,000. They burn oil and are equipped with turbines and reduction gears and Yarrow type water tube boilers. Their service speed is 15½ knots and they can do 17 knots if pushed.

The service as maintained provides a sailing from New York (docking at Hoboken) to South America every two weeks. The principal South American ports of call are Rio de Janeiro, Santos, Montevideo and Buenos Aires. A round voyage for one ship takes about 56 days. It is, of course, possible to go and come back in much less time by returning on one of the other ships. The actual sailing time from New York to Rio de Janeiro is 12 days.

American Ships Help Trade

Among the principal items of export cargo are automobiles, factory machinery, locomotives, railway equipment and agricultural implements. Among the principal items of import cargo are dyes, coffee, wool, hides, linseed and fertilizer.

Under Munson Line operation for the shipping board, commerce on this route has been steadily developed until it appeared that this line could be profitably run by private operators. The ships were then offered for sale. Before the War practically all the commerce between the United States and South America was carried under foreign flags. Both exports and imports between South American countries and the United States were usually carried on two legs of a triangle, from New York to Liverpool to South American ports. This route put our manufacturers and exporters to a great disadvantage in selling their goods in South American markets. This disadvantage was removed as soon as the Pan America Line was established and our trade with South America, both export and import, developed with great rapidity. In the development of its railroads alone, South America has, in the last few years, spent hundreds of millions of dollars. Since the establishment of the Pan America Line manufacturers in this country have sold to South America practically all of the locomotives which they have ordered, and most of the rolling stock.

A Resume of the Bids Received

Some evidence exists of dissatisfaction on the part of unsuccessful bidders for the Pan America Line and it may therefore be well to give here a chronological summary of the various bids made as given out from time to time by the shipping board.

On Sept. 12, three bids were filed with Admiral Palmer for the purchase of the Pan America Line, in which four steamers are run between New York and the East coast of South America, under the management of the Munson Steamship Line acting as agents for the Emergency Fleet Corp. On Sept. 14, President Palmer of the Fleet corporation sent to the shipping board his recommendations for the disposal of the four ships. At that time terms of the various bids and Mr. Palmer's recommendations were not made public.

On Sept. 17, the shipping board by a three to three vote failed to affirm the recommendation of Mr. Palmer that the four ships of the Pan America Line be sold to the Munson Steamship Line, the present operators, for $3,080,000. Commissioner Benson was not in attendance. On Sept. 18, Frank C. Munson, president of the Munson Steamship Line, appeared before a special meeting of the board to explain his offer. The Munson bid, though the highest received at this time, was rejected by the board as inadequate.

On Oct. 28 the shipping board issued a second call for competitive bids for the Pan America Line to be in by 11 a.m. Nov. 2. The bids received were opened on that day and it was found that the Munson Steamship Line offered $800,000 per ship or a total of $3,200,000 and that Moore & McCormack of New York City offered $1,025,025 per ship or a total of $4,100,100 for the four ships. After the bids were opened the Munson Steamship Line made a new bid of $1,026,000 per ship or a total of $4,104,000 for the four ships. The board then took these bids under advisement and asked the president of the Fleet corporation for his recommendations. Nothing further was officially heard of the matter until Nov. 12 when the board announced the sale of the ships and the service to the Munson Steamship Line for $4,104,000.

This action of the shipping board was taken after Moore & McCormack of New York had withdrawn their bid of $4,101,100, protesting against the manner in which bids were obtained from the Munson Line and contending that the board two days previously altered the terms of the proposed sale, also that new competitive offers should have been received after the prospective bidders had had an opportunity to look over the vessels to arrive at an estimate of the repairs necessary to place them in good condition.

All of the members of the board present with the exception of Admiral Benson voted for the sale of the ships to the Munson Steamship Line. His objection was that a guarantee of operation of the service should have been exacted for more than five years. Delivery of the ships to the Munson Line was to be made at once upon the execution of the sale. The shipping board agreed to make repairs on the vessels up to $200,000. Over this any necessary repairs are to be made by the new owners. It is understood that the Munson Line paid 25 per cent of the purchase price on delivery of the ships and the remainder will be paid in 14 annual installments bearing 4½ per cent interest. A bond of $1,000,000 is also called for to guarantee maintenance of the service for a period of five years on the same schedule.

South American Trade Grows

The fact that the United States is gaining in commerce with South America, and is strengthening its foothold in a field dominated by foreign competitors before the war, is shown by a number of reports, according to Frank C. Munson, president of the Munson Steamship Line. In a recent statement referring to the report of the department of commerce for July, showing an increase in exports to South America from $23,000,000 in July, 1924, to $32,000,000 in the same month of this year, Mr. Munson said:

"This advance in trade is not a flash in the pan, but reflects the steady growth of business from year to year. The quality of United States products,

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especially automobiles, agricultural implements and machinery of all kinds, is becoming better known and is resulting in a constantly broader market in South America.

"I believe also that the establishment of a fast steamship service under the American flag, giving exporters better facilities than they have ever had before, has played an important part in this trade expansion. I look for South America to rival Europe in the next few years as an outlet for exports from this country. It is our natural market and should be cultivated."

SOCIAL HALL OF THE AMERICAN LEGION ONE OF FOUR IDENTICAL SHIPS RECENTLY PURCHASED BY THE MUNSON LINE

Mr. Munson also pointed out that the department of commerce shows $4,000,000,000 invested by this country in Latin America, amounting to two-fifths of our total foreign investments. England, with a total of $6,600,000,000, is the only nation that outranks the United States in the southern republics.

"Our financial interest in Latin America will strengthen the commercial ties between the two continents and will inevitably lead to greater trade." Mr. Munson continued. "Our large industries realize this and many of them have established their own branches in the principal cities. The number of business men who travel back and forward on our vessels is evidence of the greater growth of trade. The outlook is most encouraging."

Mr. Munson quoted from the recent article on South America by Isaac Marcosson in the *Saturday Evening Post*, in which he said:

"The necessary tools of trade, notably ships and banks, support this new trade consciousness. . . A decade ago the Yankee business man arrived in Buenos Aires on a foreign vessel, which also carried whatever merchandise he shipped. Today he comes on a liner flying the stars and stripes that makes the fastest time between New York and the River Plate.

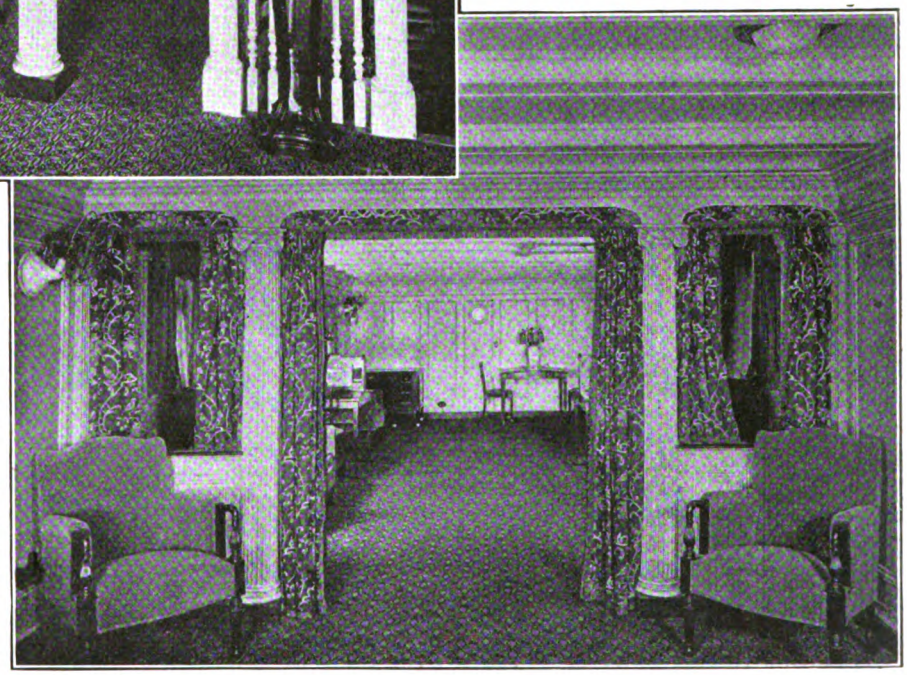
"Before the establishment of the passenger line in particular, shippers and consignees had to wait for their cargo and mail from a month to six weeks. Now they have a dependable service which transports letters and freight between the two extremes of the itinerary in eighteen days, which is three days less than the best British-operated schedule. The development of our shipping on the East Coast is in keeping with our trade expansion. . . . Our shipping is so firmly established in Argentine trade as to make its position permanent."

Passenger traffic between the two continents has also, increased largely, according to Mr. Munson, who said that in addition to those traveling for business an expansion is noted in the number of tourists making trips to South America. He predicted a steady advance in the tourist business.

Clifford W. Smith, director for Brazil for the Fleet corporation with headquarters at Rio de Janeiro, recently commented as follows on conditions in Brazil:

"Brazil is experiencing a great wave of prosperity and progress at the present time, and American business is sharing it to a constantly increasing extent thanks to American ships, cables and banks, the three prime factors in the establishment of foreign trade in any market. American business is holding the leadership in trade with Brazil, gained since the war, and our products of every nature are becoming increasingly popular. The Brazilians are a young, vigorous and progressive people with a viewpoint very similar to our own and we enter the Brazilian market with an advantage over other countries because of the sympathetic bond between the two peoples.

"The fast American flag passenger service between New York and Rio de Janeiro, Santos, Montevideo and Bue-



LOOKING FROM THE SOCIAL HALL INTO THE WRITING ROOM ON THE AMERICAN LEGION. THIS VESSEL AND HER THREE SISTER SHIPS ARE FITTED IN GOOD TASTE AND ARE LUXURIOUS AND COMFORTABLE

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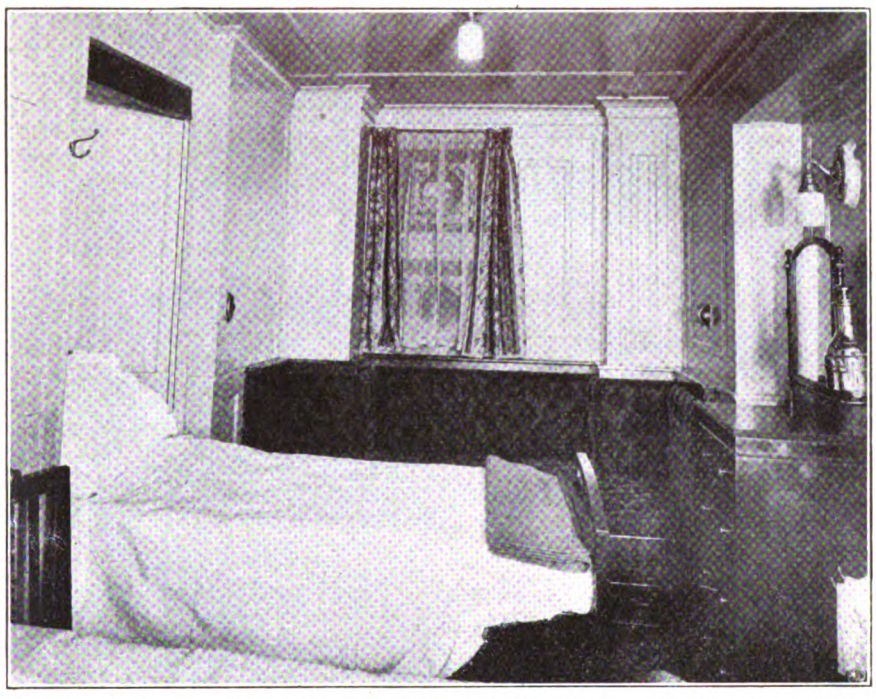
nos Aires has brought the two countries closer together by reducing the voyage to Rio de Janeiro to twelve days and has set a new standard, not only of speed but of comfort and excellence of service. By expediting the mails and the delivery of high class and valuable cargo this service has proven of immense value to American business in Brazil. Last year this line carried over 60 per cent of the first and third class passenger business and it is increasing its popularity constantly. Tourist travel to South America is on the increase, thanks to ever improving steamship services, and these great Republics to the south are certain to become an increasingly popular objective for American travelers as our people learn more of their picturesque and beautiful cities, modern hotels, delightful climatic conditions, gay and cosmopolitan society and unrivalled business opportunities.



A TYPICAL STATE ROOM ON THE S. S. AMERICAN LEGION—OPERATED IN THE NEW YORK SOUTH AMERICAN RUN

"Although the Brazilian buyer suffers a great disadvantage because of the depreciation of the milreis against the dollar, American trade continues to lead in Brazil because of the excellence of our products although in most fields the price factor, when converted into Brazilian currency, is against us especially when compared with Germany, Belgium, Italy and in some lines Great Britain. Our automobiles dominate the Brazilian market to the practical exclusion of all others and American moving pictures have captured the Brazilian favor and are destined to exert a marked influence on Brazilian life and customs and to bring the two countries closer together. The latest releases are to be seen in the principal Brazilian cities very shortly after they appear in this country and the theaters are crowded. It is to be hoped that more and more attention will be given the character of films sent to South America to prevent unfortunate and unfair misconceptions of this country.

Brazil Wants American Products

"American office appliances such as typewriters, calculating machines, filing systems and cases, pharmaceutical products, machinery and elevators, automobile tires and accessories, floor coverings and hardware are very popular in Brazil, and petroleum products, of course, form a large part of our exports to that country. American flag lines serve every section of the United States and the entire range of Brazilian ports and have afforded our manufacturers a splendid opportunity to put their products into this rapidly developing market. Our lines carry a large and growing share of American sales to Brazil and are firmly established in the favor of shippers although it is to be hoped that our exporting houses will to an increasing extent adopt the policy followed by other nations interested in foreign trade and make a practice of automatically routing via American flag vessels in every case where the foreign buyer does not otherwise stipulate. Of course in every case where all conditions are equal Americans buying abroad should require shipment by first American flag steamer available.

"Turning to Brazil's sales to the United States we find this country by far the best customer for Brazil's great basic product, coffee, taking each year in excess of 50 per cent of the entire production. In the transportation of this important and valuable commodity American ships have won a place of which we are justifiably proud, not only because of the large volume we carry but because against strong competition from old established steamship companies our lines have built up a class of service that sets the standard in the coffee trade. Last year our four services carried 3,230,710 bags out of a total of 6,983,060 bags shipped to the United States or 46 per cent leaving the remaining 54 per cent to be divided among six competing foreign lines operating eleven services. This year, our lines we hope, will carry an even larger percentage. Shippers and consignees universally express the keenest satisfaction with the character and frequency of service afforded them by the American flag lines in the coffee trade and although these lines enjoy to a large extent the patronage of the old American coffee houses in Brazil they are also proud of the friendship and patronage of many foreign concerns among which are some of the most important Brazilian houses.

Trade Will Grow Rapidly

"There can be no question but that these American flag services to South America are firmly and permanently established and that together with American banks and cables, they presently and will in the future insure to American business a firm basis on which to build our trade with these great new markets to the south, destined beyond doubt to be among our best customers and closest friends."

Commenting upon the acceptance by the United States shipping board of his offer for the purchase of the four South American ships, Frank C. Munson said:

"Under private control, we shall continue the present schedule of sailings. In addition we shall conduct a vigorous campaign to increase the freight and passenger business. There is no reason why there should not be an increased passenger business. There is no reason why there should not be an increased tourist traffic to South America, for instance. While South American countries are in general undeveloped, imperial cities like Rio de Janeiro and Buenos Aires are the equal in beauty and interest of those in Europe. The outlook for the future of the line is excellent."

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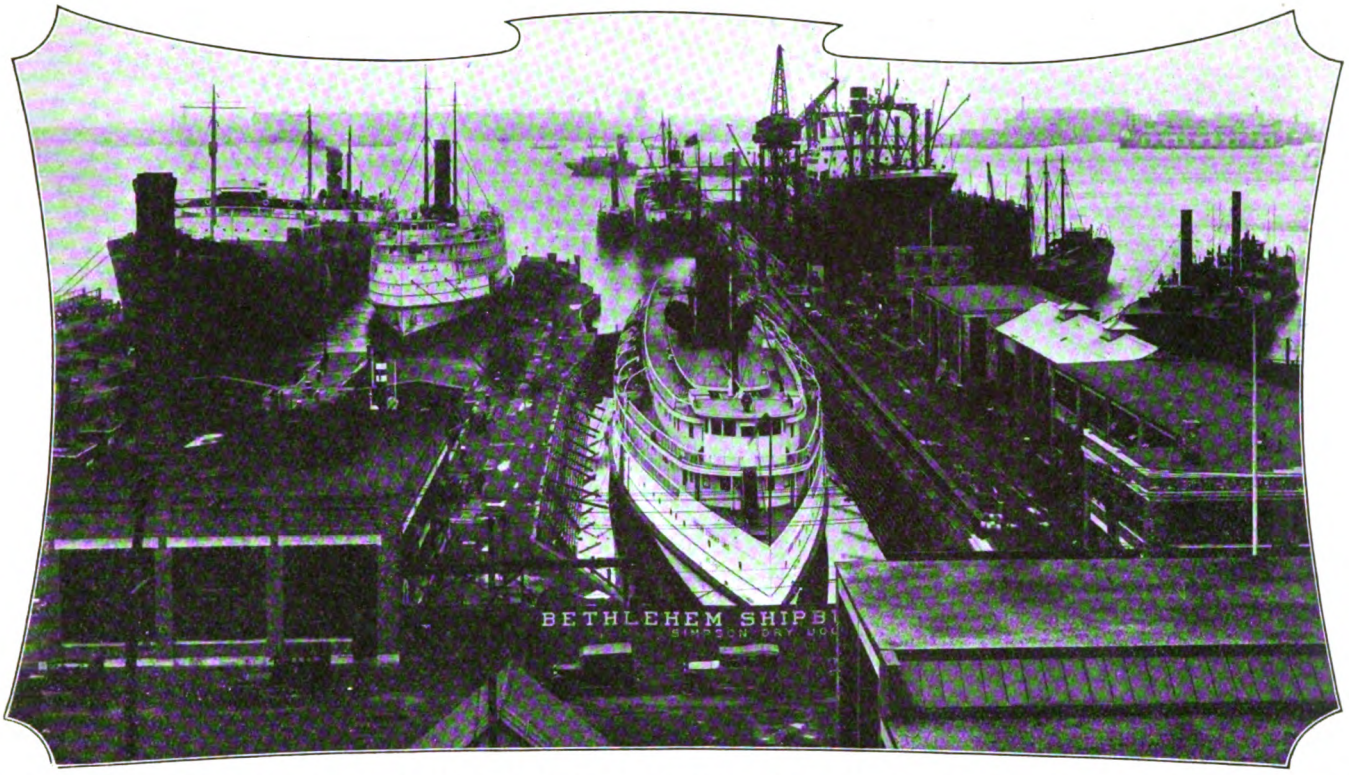

A busy scene at the Simpson plant of the Bethlehem Shipbuilding Corp. Ltd., Boston.—Each one of the three graving docks is occupied as well as the 11,000 ton floating dry dock.—Other vessels are tied up at berthing spaces for repairs.—In the two years since its purchase this plant has been transformed into a fully equipped first class ship repair yard capable of handling any work called for

Repair Your Ships in Boston

Extensive Improvements at the Simpson Plant Makes This Yard Equal to Any of Its Size on the Atlantic Coast

DUE to its splendid harbor and strategic geographical position, Boston has become, in the course of its long history, the metropolis of a large and thriving industrial area and the principal natural and ideal gateway to the Atlantic between New York to the south and the gulf of St. Lawrence on the north. Compared with the spirit of enterprise and progressiveness of younger ports less favored in a natural way, Boston has been inclined to be conservative and somewhat lacking in vision and initiative. There are indications now, however, that a change in attitude is taking place and that capital and enterprise devoted to improvements and expansion are welcome.

Certainly one of the most important essential adjuncts of a good all around port along with adequate depth of water and good docks is a thoroughly equipped, first class ship repair plant where work can be quickly and efficiently done. Some years ago a port commission authorized by the Commonwealth of Massachusetts worked out a very ambitious plan of development along the South Boston waterfront. These plans were carried through to the extent of building the Commonwealth graving dock (the largest in the whole country and the only one capable of drydocking the LEVIATHAN and MAJESTIC) and the Commonwealth pier. A great deal of money was spent on this project and the comprehensive plan ceased. The dry dock proved to be somewhat of a white elephant. No adequate repair facilities or shops were provided and the dry dock was finally turned over to the United States navy and is now operated in conjunction with the Charlestown navy yard.

Though Boston ranks among the six largest ports in the United States it has lacked, until quite recently, a really modern, fully equipped ship repair plant. And it has such a plant today as shown in the accompanying illustrations, due to the vision, courage and enterprise of the Bethlehem Shipbuilding Corp. Ltd., in buying the old Simpson dry docks and in carrying through to completion an elaborate and costly construction program, converting this obsolete plant into one of the most complete and best equipped ship repair yards on the Atlantic coast. There is nothing of the philanthropic about this enterprise as it was planned and has turned out to be an excellent business proposition, amply justifying the courage and judgment displayed.

The old Simpson's Patent Dry Dock Co. located on the East Boston shore adjacent to the terminal of the Boston and Lynn narrow gauge railway, was taken over by the Bethlehem Shipbuilding Corp. Ltd. about two years ago. Three old wooden graving docks had, prior to this time, been in operation for about seventy years. The manner in which they came to be built is unique. It seems that in the days of the clipper ships, an association was formed of ships' captains, who pooled together and had these dry docks built so that they could haul out their vessels in Boston harbor on their return from long voyages. Beginning with this early service, all types of ships from the four corners of the globe have been docked in them and they have rendered valuable service to the navy during all of our wars.

Development of this property began immediately after the Bethlehem Shipbuilding Corp., Ltd. acquired the plant. The old steam engine, which has been in use since the building of

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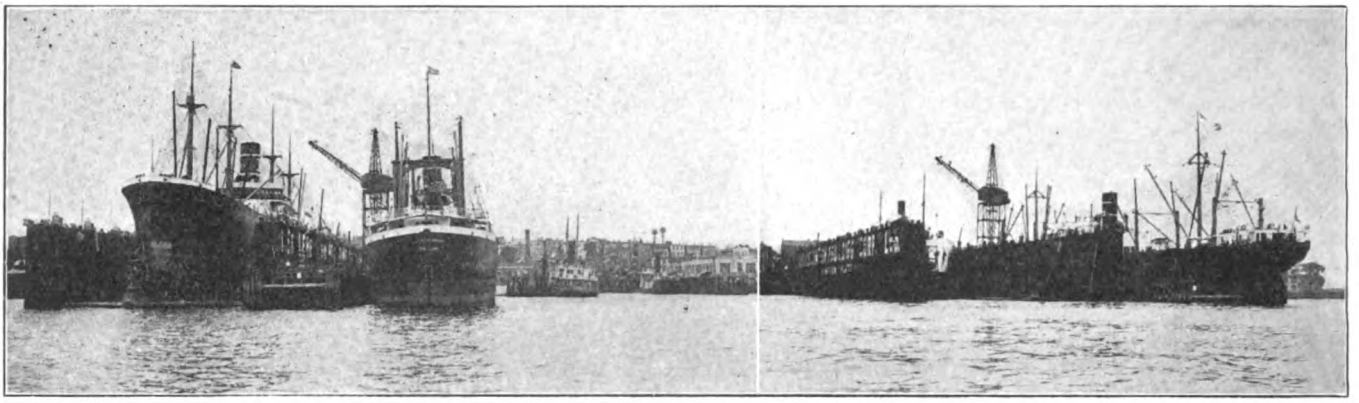


LEFT—VIEW APPROACHING THE SIMPSON PLANT OF THE BETHLEHEM SHIPBUILDING CORP., BOSTON.—THE EDGAR F. LUCKENBACH IN DRY DOCK AND THE J. L. LUCKENBACH AT BERTHING SPACE. RIGHT—A VIEW FROM THE WATER FRONT SHOWING A UNITED FRUIT CO. VESSEL IN DRY DOCK AND THE TRAVELLING CRANE IN USE

the docks, was discarded and replaced by an electric motor and chain drive. The main pump was re-designed and new electric drainage pumps were installed, with the result that the docks can now be pumped out in about half of the time previously required. The plant has been completely equipped with air, water, steam and electric power and lighting lines, conveniently located in trenches, so that this service is available at all points throughout the yard. A new 15-ton traveling Terry crane has been installed so as to serve two dry docks and two wet basins, with a total travel of about 1000 feet.

A new combination building has been erected, which not only provides comfortable accommodations for the office force, but also includes a locker room, shower baths and office for the use of the various inspectors and marine superintendents who have business at the plant. In this building, perhaps in keeping with the old traditions of the yard, there has been installed a commodious captains' room richly panelled in natural teak, with an open fireplace and furnished with a large table and comfortable chairs. This room might well serve as an appropriate setting for the return of those Yankee skippers who carried the flag to every part of the world.

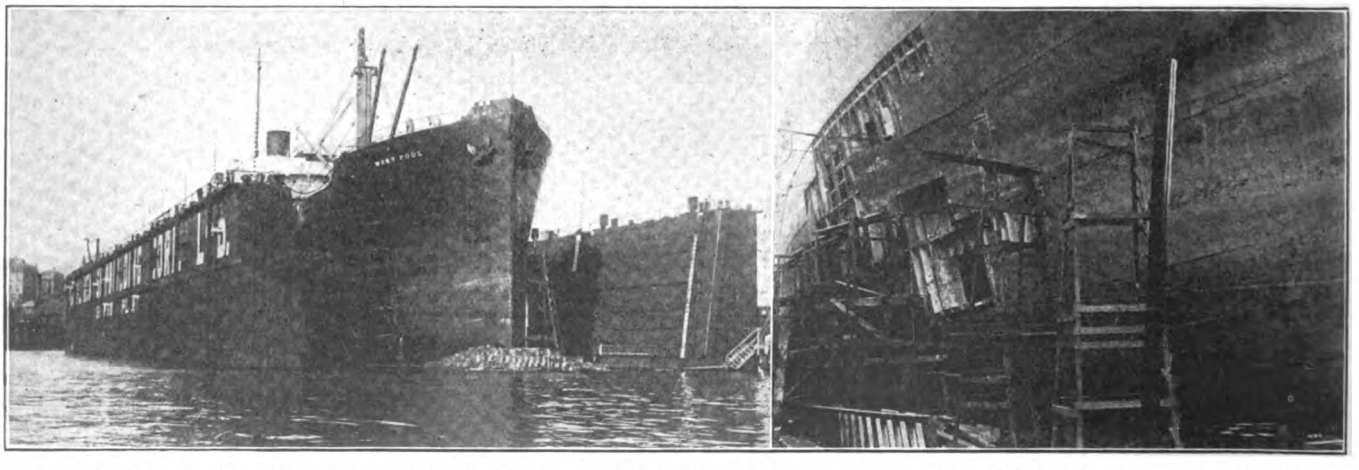
New shops have been built and new equipment bought and installed, so that the plant can handle any kind of ship repair work. For any unusual work, such as a large crank-shaft, the Simpson plant is backed up by the resources of the Fore River plant, only ten miles away and within easy trucking and lightering distance.

The latest development has been the installation of an 11,000-ton floating dry dock, which was formerly located at the Fore River plant at Quincy. This dock is 480 feet long, with ten wooden pontoons and continuous steel wing walls. It is operated by twenty 50 horsepower motors and is capable of lifting a ship in about one-half an hour. This dock is so installed that there is 19 feet over the keel blocks at mean low water and its operation is not hampered by tides.

The floating dock is moored to a new concrete pier 550 feet long, which not only supports the traveling crane, but also gives the plant a berthing space of approximately 550 feet by 120 feet, dredged to a depth of 24 feet mean low water. Down the center of the new concrete pier is a trench which contains water, steam, air lines, electric power and lighting lines, of sufficient size to supply any vessels in the dry dock and adjacent pier. A 1000 gallons per minute centrifugal pump supplies a 7 inch line with salt water for fire protection and tank testing. Since the boom of the traveling crane is 87 feet long, the floating dock and adjacent berthing space are well provided with crane service. This gives a lay-out which can hardly be

To the Port of Boston

The editor of Marine Review visited the Simpson plant at Boston during the past summer and was impressed with the excellent ship repair facilities provided and no less so with the very evident, unstinted expenditures authorized by the Bethlehem management to make these facilities possible. The accession of so modern and so complete a plant is an important asset and its influence will be felt by attracting more shipping to the port of Boston. Such enterprise should be encouraged and fostered in every way.



LEFT—WEST POOL WITH CARGO OF GRAIN ON BOARD UNDERGOING SERIOUS BOTTOM REPAIRS IN DRY DOCK AT THE SIMPSON PLANT—RIGHT—HULL DAMAGE TO S. S. LILLIAN LUCKENBACH REPAIRED IN TEN CONTINUOUS DAYS

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equalled on this coast for convenience of operation and adaptability to efficient and expeditious work. In fact it is no exaggeration to say, that to the observer the location in relation one to the other, of the graving dock, the long pier and the floating dry dock, with every square inch of each completely served by the traveling crane, represents one of those especially ideal arrangements seldom realized in practice due to modifying circumstances over which it is impossible to exercise any control.

The urgent need of the port of Boston for adequate ship repair equipment has been clearly shown by the practically continuous use of the floating dry dock since its installation at the Simpson plant. Many interesting repairs have been carried out.

The S. S. WEST POOL, bound for Hamburg with a full cargo of grain, struck a submerged object off Nantucket lightship and was badly damaged. This boat was drydocked with her cargo. The tank top was shored, the vessel carefully cribbed and six plates and ten floors were removed and replaced. The process of removing cargo would not only have been very costly and slow, but would probably have spoiled the grain, whereas the repairs, as actually carried out, delayed the vessel but a very few days. Several other vessels have been drydocked with cargo that could not have been handled in the port of Boston before the installation of this dock without costly delays.

Recently, the S. S. LILLIAN LUCKENBACH underwent repairs while on the floating dock, which necessitated the removal of 17 frames, a span of approximately 40 feet, and 13 plates. This work was accomplished in ten continuous days and completed a day and a half ahead of the contract time.

Ships no longer need to limp out of Boston in order to get to some other port to have repairs made. Such repairs no matter how elaborate can now be carried out quickly, efficiently and economically in that port.

Lake Carriers Honor Livingstone's Memory

Text of Resolution Adopted Nov. 4, 1925

THE executive committee of the Lake Carriers' association meets together today to sadly and affectionately honor the memory of its beloved president. William Livingstone was born Jan. 21, 1844, and early in life moved to the city of Detroit, where he lived for seventy-five years, and where he died suddenly on Oct. 17. He was a man of extraordinarily varied interests, in each one of which he became a conspicuous success and outstanding figure. He was a man of deep religious and charitable interests, was for many years active in Masonry and attained the distinction of the thirty-third degree in that order; he was an able politician, his views and counsel having been sought for many decades by the leaders of his party, and in fact he himself was one of the leaders of the Republican party in his own state of Michigan; he served conspicuously as collector of customs at the port of Detroit; was a member of the legislature and a delegate to the Republican national convention which nominated President McKinley in 1896: he was a devoted husband and father; with a record as a family man which was the admiration and delight of every one who knew him intimately.

Mr. Livingstone had a mind which was naturally constructive and he was blest with unlimited energy and with infinite tact. To this equipment was added very great natural ability, and with these qualifications there can be but little wonder that he was able to and did accomplish far more in his chosen walks of life than is given to the ordinary man to do. As a business man he organized and developed various enterprises; as a newspaper man he purchased, owned and edited a leading newspaper in Detroit for many years; as a banker he helped organize the Dime Savings Bank of Detroit, was a member of its first board of directors, and was its president from 1900 to the present year, guiding this institution, small at its inception, to the proud position of the fourth largest bank in Detroit.

While his occupations were many, the great love of his life, however, outside of his family and friends, was the waterways of the Great Lakes. Almost at the beginning of his career, he became identified with lake shipping, and he remained continuously an owner of lake vessels of various kinds until his death. His deep interest in, and his almost uncanny ability to forecast the future of these waterways led him many years ago to successful efforts in preventing the spanning of the Detroit river by a railroad bridge, and led him to promote the first Weitzel lock at the Soo and to be largely instrumental in bringing about the completion of the Poe lock.

His efforts on behalf of the owners of lake carrying vessels led naturally to his elevation to the high and internationally prominent office of president of the Lake Carriers' association in 1902.

He remained continuously our president from the date of his inauguration until his death, and, during his incumbency many important improvements to navigation on the Great Lakes were brought to completion. Perhaps the greatest outstanding accomplishments during Mr. Livingstone's administration were the completion of the Davis and Sabin locks at the Soo, the deepening and straightening of the channels connecting the Great Lakes, the promotion and completion of the Livingstone channels, and the successful fight waged against the elements by the grain-carrying fleet in the distressing fall and winter.

The government of the United States recognized his accomplishment in the direction of lower transportation costs, and hence lower distribution costs of the basic world commodities by attaching his name forever to the channel at the mouth of the Detroit river, so that so long as ships float upon the great inland seas, the name of William Livingstone will necessarily be revered and honored.

After nearly a quarter of a century of the closest and most intimate contact with William Livingstone, the members of this association find words inadequate to express their admiration for his courage, his love of country, and his nobility of character, or to express their affection for his endearing qualities of mind and tenderness of heart. There is no member of this association who does not owe him an inextinguishable debt of gratitude for the shining example he set before us of a fine, noble, patriotic citizen, of a courteous and considerate gentleman, and of a warmly affectionate friend.

Be it ordered that this heartfelt but inadequate tribute be spread upon the records of the association, and that a copy be sent to the family of Mr. Livingstone in token that we members of the Lake Carriers' association will cherish the memory of their dead father and of our dead leader with a love that shall never die.

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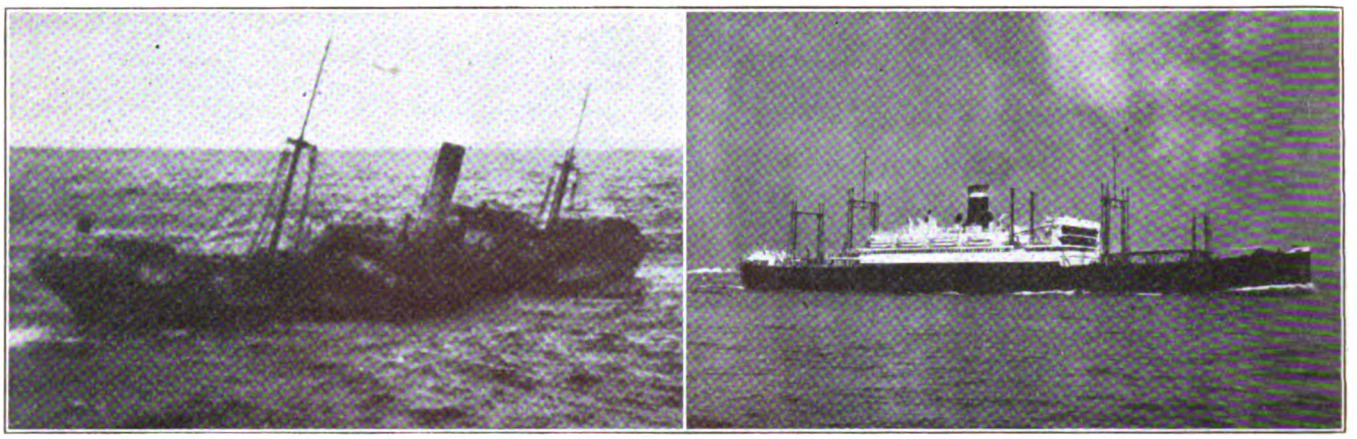
American Vessel Makes Gallant Rescue



(Left) Italian freighter IGNACIO FLORIO on Oct. 19, 1925. (Right) President Harding of the United States line

THE PRESIDENT HARDING of the United States Lines, commanded by Capt. Paul C. Grening, sailed from Cobh, Ireland on Oct. 16, bound for New York with 314 passengers on board. On Oct. 11 the Italian freighter IGNACIO FLORIO in command of Capt. Aniello Lauro, sailed from Montreal with a cargo of 5170 tons of grain for Avonmouth, England. A gale of hurricane force came up seven days out. The freighter battled the gale with little success, a wave smashed in one of the hatches and the second mate was lost overboard. The steering gear chain snapped breaking the first mate's foot. Midnight Oct 19 when 1650 miles off Ambrose light S. O. S. calls were sent out.

One of the three replies was from the PRESIDENT HARDING, 161 miles to the south, herself barely making steerage way. True to the best tradition of the sea the HARDING wirelessed: "Proceeding to your assistance." At 1:55 p. m. the IGNACIO FLORIO was sighted dead ahead. But the seas were too mountainous for a boat to live in. Oct. 21, 9 a.m. Capt. Grening sent word: "We will use one big life boat and will take you all at one time. We will make one trip. Where is the best place to come alongside? Have small lines ready. Wear your life belts." When volunteers were called for to man the big Lundin decked life boat every man stepped forward. Chief Officer Giles Stedman picked seven men—Fred Strelow, Richard Carlson, Thomas Seaton, Charles Skare, John Wiggle, Carl Meyers and Salvatore Brocco. All of the 27 men and the ship's cat were taken off the IGNACIO FLORIO. The HARDING was put back on her course to New York and the following entry made in the log: "Detention 21 hours, 15 minutes rescuing crew of the S. S. IGNACIO FLORIO. Overcast, whole gale, very high sea." On Oct. 27, four and a half days overdue, Captain Grening brought his ship into New York and he and his crew received a welcome worthy of homecoming heroes.

Capt. Grening Honored

"Whereas, on Oct. 19, 1925, the United States shipping board steamer President Harding, during a North Atlantic gale of hurricane force, though herself exposed to perils which only superb seamanship could successfully overcome, nevertheless proceeded to the wholly disabled Italian steamship Ignacio Florio and after hours of extraordinary effort, worthy of the noblest traditions of the sea, rescued the crew of that sinking ship;

"Resolved, that the United States shipping board hereby express its full appreciation of the high courage and splendid skill displayed by Capt. Paul Grening and the officers and crew of the President Harding, who have thus added glory to the American flag.

CAPT. PAUL C. GRENING
Commander S. S. President Harding

CHIEF OFFICER GILES C. STEDMAN OF THE PRESIDENT HARDING AND VOLUNTEER LIFEBOAT CREW, FRED STRELOW, RICHARD CARLSON, THOMAS SEATON, CHARLES SKARE, JOHN WIGGLE, CARL MYERS AND SALVATORE BROCCO.

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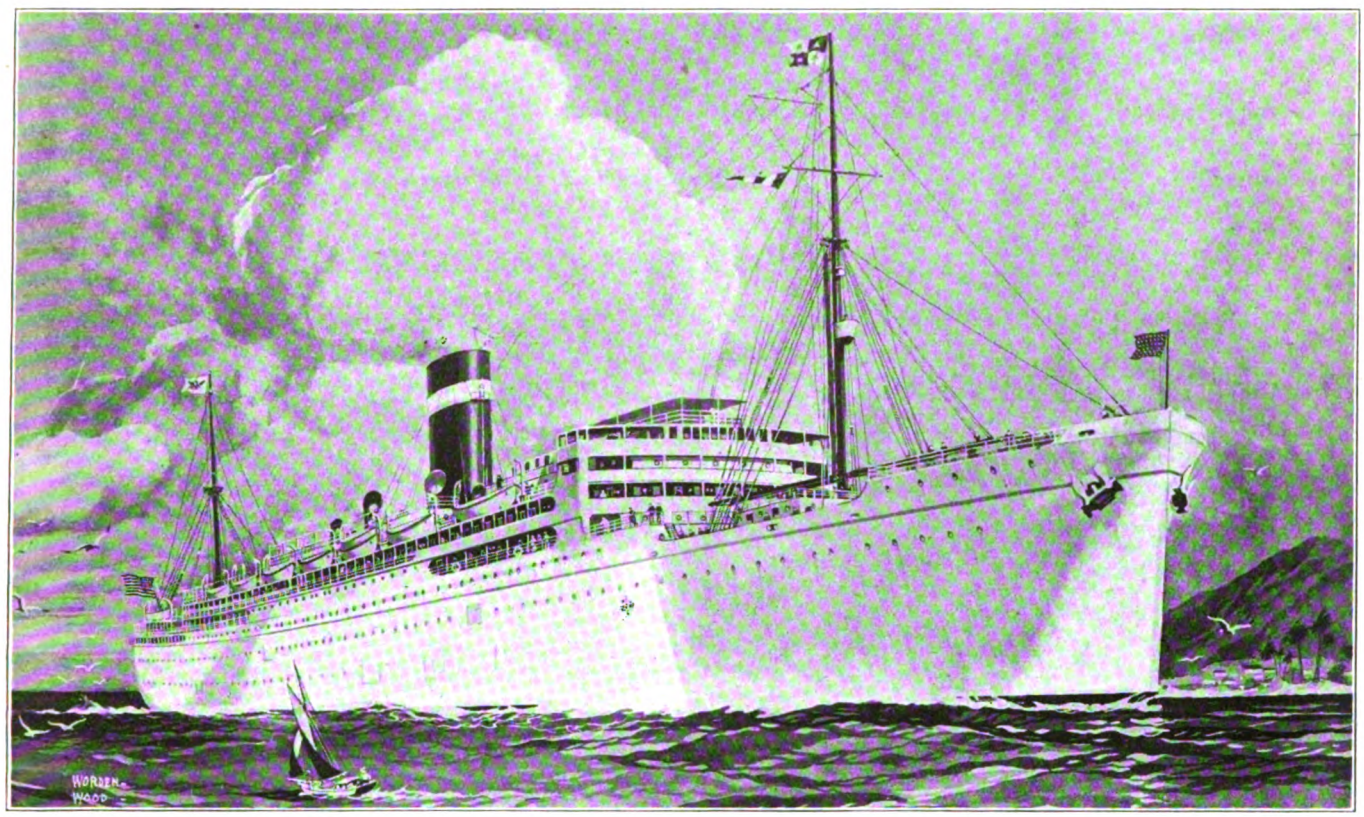
Order New Turbo-Electric Liner

First of Three Modern Liners Ordered by the I. M. M. for the New York-California Service of the Panama Pacific Line



A reproduction of a painting by Worden Wood of the new passenger and cargo vessel ordered by the Panama Pacific Line from Newport News Shipbuilding & Drydock Co. on Oct. 28, 1925, for service between New York and California ports. She will be 22,000 gross tons, 31,000 tons displacement, 600 feet long and 80 feet wide. The propelling power will be turbo-electric and a speed of 18 knots is expected

IN THE fall of 1927 travelers by water between New York and California may book passage on a liner comparable to the finest transatlantic ships now in service. Considering the wealth and population of these two great sections of the country the popularity and patronage of a high class service should be assured. Furthermore providing such a service will have the effect of promoting trade and travel and the development of the vast resources of the Western states. A tremendous future growth of this section is intimately connected with the continued welfare of the country as a whole and cannot conceivably fail to come about as long as the nation thrives and prospers.

Based on past experience and as an earnest of its faith in the future the International Mercantile Marine Co. on Oct. 28, 1925 placed an order with the Newport News Ship Building & Drydock Co. for a fast 22,000 ton gross register passenger liner, for the New York-California service of the Panama Pacific line, and announced that the new vessel will be one of three of similar character that the company plans to build for that service.

The new liner it is claimed will be the largest and most luxurious ever constructed in an American shipyard, and will have a new type of propelling machinery, hitherto untried in large commercial vessels, though thoroughly tested in the American navy, known as turbo-electric drive. Oil-fired boilers will furnish steam to turbines driving electric generators whose energy will turn twin propellers. A voyage speed of 18 knots an hour is expected.

Passenger and Cargo Vessel

Panama Pacific line officials stated that the order for the new vessel inaugurated a program the line has had in preparation several months for largely increasing its tonnage in its New York-California trade. The ship not only will have large passenger capacity, with accommodation for 362 in first class and 368 in tourist class, but will also be fitted with capacious refrigerators for carrying California fresh fruits, as an important unit in ventilated holds that will have a total capacity for 7800 tons of freight.

In general design, as well as in details of plan and construction, the new liner will differ from any other vessel now employed in the American coastal or intercoastal trades. Her design is based on the new "Minne" class liners of the Atlantic Transport line, the Minnewaska and Minnetonka, plying between New York and London, but elaborated, as to deck plans and cabin arrangements, to meet the exacting requirements of service in both tropical and temperate climates at all seasons of the year. Special attention has been paid to ventilation, and to the provision of open and airy effects in staterooms and public rooms which can, at will, be closed and heated satisfactorily when the vessel meets cool weather.

Smartness of appearance, and a suggestion of tropical service will be accentuated by a white hull and superstructure. The ship will have eight decks. There will be 147 staterooms in the first class, and 110 in the tourist class. Public rooms, consisting of

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a spacious lounge, library, dining saloon and smoking room for each class, will be finished in American walnut and white, in period styles. There will be playrooms for children, gymnasiums both indoors and outdoors, and outdor swimming pools.

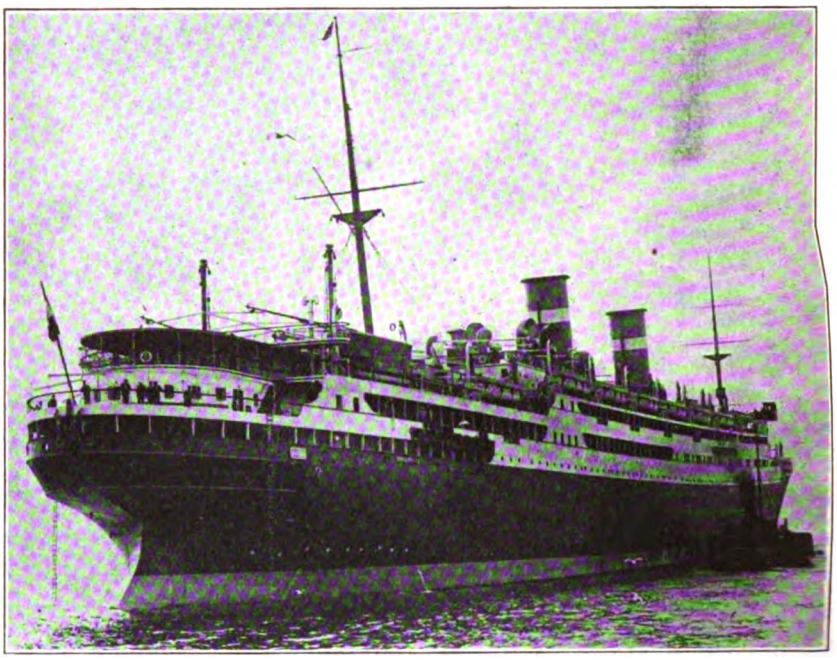
Novel features in the vessel's construction will embrace large side ports through which automobiles carried by passengers as baggage can be driven on board; staterooms all of the outside type in both classes; private baths for all the principal first class staterooms, and deck spaces for promenading and sports exceeding in breadth those on the monster transatlantic liners.

The principal dimensions of the vessel will be: Length 600 feet; breadth 80 feet; depth 52 feet. Her displacement when loaded will be 31,000 tons. A power installation embracing turbo-electric engines of 18,000 horsepower, will furnish electrical current for motors coupled to twin screws. All of this machinery will be supplied by the General Electric Co. There will be 12 water-tube boilers, burning oil.

It is expected that the new vessel will be ready for delivery in the fall of 1927, when she will take her place with the other vessels in the Panama Pacific line service between New York, Havana, Panama Canal, San Diego, Los Angeles and San Francisco.

New Italian Liner Runs Successful Trials

THE illustration to the right shows the Italian Atlantic liner Conte Biancamano, 655 feet long overall 76 feet wide and 39 feet 6 inches deep of 23,000 gross tons, built and engined by William Beardmore & Co. Ltd., Dalmuir, Scotland, for the Lloyd Sabaudo Co., Genoa, for service between Italy and South America. Successful trials were run over the measured mile on the Firth of Clyde on Nov. 3, 1925. A speed of 21 knots was attained. The new vessel is splendidly equipped throughout and will carry 500 first class, 590 second class, 660 third class and some high class cargo. She is an oil burner with twin screws and turbine reduction gear machinery of 12,000 horsepower per each shaft. She was built in record time and in spite of extras was delivered on the contract date. Her keel was laid in June, 1924, she was launched in April, 1925, and completed in November.



Recent Sales of American Ships

THE president of the Emergency Fleet Corp. has announced a number of recent sales of tonnage. The sale of six Hog Island type, steel cargo vessels of approximately 7825 deadweight tons each, to the Carolina Steamship Corp., under agreement for maintenance of a regular American flag service for a period of five years between South Atlantic ports and United Kingdom ports and European ports north of Bordeaux, has been duly completed by the delivery of the S. S. SUNDANCE the last of the six vessels to be delivered under the sale. The other vessels are: COLDWATER, MAGMERIC, SHICKSHINNY, TULSA and SCHOHARIE. The price consideration for these vessels was $45,000 each, accompanied by a guarantee to make a stipulated number of voyages per year on the service described, for the five-year period. Details of the sales of other vessels follow:

RIPON, lake-type cargo, 4208 deadweight tons, 2689 gross tons, for $45,000 to Edwin H. Duff, 1308 F street, N. W., Washington, D. C.

CHAUTAUQUA, lake-type cargo, 3610 deadweight tons, 2323 gross tons, for $25,000 cash consideration and contract supported by bond to perform specified alterations and betterments under approved plans and specifications, to Baltimore & Carolina Steamship Co., Baltimore, Md.

CORAPEAK, lake-type cargo, 3180 deadweight tons, 2153 gross tons, for $29,000 to Charles F. Webb, 110 State street, Boston.

MEMNON, steel cargo 5129 deadweight tons, 3329 gross tons, for $90,000 to Columbia River Packers' association, Astoria, Ore.

PALLAS, steel cargo, 7640 deadweight tons, 4839 gross tons, for $180,000 to James Griffiths & Sons, Inc., Seattle, Wash.

GOLIAH, ocean oil-burning tug, 414 gross tons, for $27,500 to Wood Towing Corp., Norfolk, Va.

It is understood that the board has also approved the sale of nineteen ships, mostly lakers, for a total of $2,147,000. Two of these went to the Oriental Navigation Co., New York, for $401,000; one to Pillsbury & Curtis, San Francisco, for $25,000; four lake-type cargo vessels to the Munson Steamship Line for $100,000 in cash, with the understanding that the company will improve them within 18 months; one to James D. Hallahan, Chicago, for $31,000; four to Finkbins-Guild Transportation Co. for $570,000; one adapted for long voyages to E. P. Farley & Co. for $240,300; three for lumber carriers to Wm. F. Shupe at $125,000 cash, each; one for $5000 to M. J. Tracey, Inc., New York; one laker to C. A. Massey, Duluth, for $26,000; and another laker to Ernest Leo Jahncke for $36,000.

The schooner CARLTON A. SMITH was sold to Thatcher Soule of Freeport, Me., for $10,100 at a federal marchal's sale held Oct. 19 at Portland, Me.

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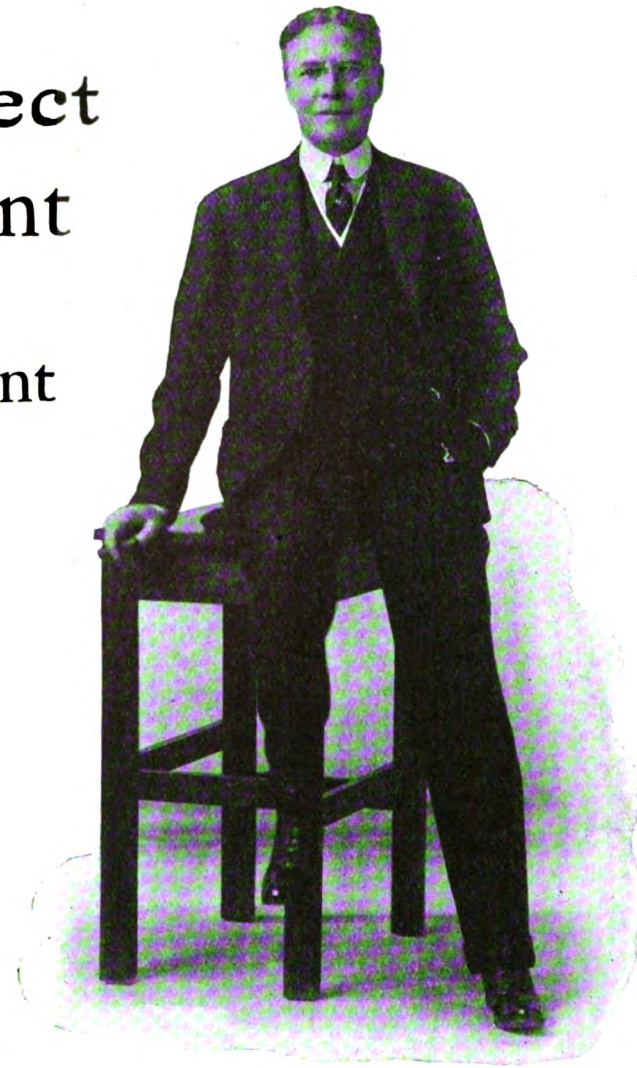
Lake Carriers Elect J. S. Ashley, President *and* L. C. Sabin, Vice President

Successor to Livingstone Is Well Known in Lake Steamship Circles and Held the Office of Vice President of the Association—New Vice President Will Reside in Cleveland—To Work for Improvements to Navigation on the Great Lakes



IT HAD been rather expected that the Lake Carriers association would wait until their next annual meeting before electing a new president to succeed the late William Livingstone. However, a feeling became general to take action in this matter and a meeting of the directors was called for Nov. 18. Practically all of the steamship companies belonging to the association were represented. At this meeting J. S. Ashley was elected president, and L. C. Sabin, general superintendent of the United States canals at Sault Ste. Marie, was elected vice president to succeed Mr. Ashley. Mr. Sabin will reside in Cleveland and will particularly concern himself with matters pertaining to improvements in channels and all manner of aids to navigation. Herbert K. Oakes, manager of the Bethlehem Transportation Co., and the Franklin Steamship Co., was at the same meeting elected a member of the executive committee, succeeding to the place made vacant by the death of Mr. Livingstone.

L. C. SABIN

As there is now no good reason why headquarters of the Lake Carriers association should be maintained at Detroit, they will very likely be shifted to Cleveland. Definite action along this line will probably be taken during the next annual meeting. The new president of the Lake Carriers is very well known to all lake shipping men. He has been vice president of the Lake Carriers association since 1915 and has been chairman of the advisory committee of the Great Lakes Protective association since it was founded in 1909. Mr. Ashley started his career as local manager for the New York & Cleveland Gas Coal Co. in 1888, and until 1900 was in charge of the movement of lake coal shipped by that company. Since January, 1900 he has been associated with the M. A. Hanna Co. At first he was in charge of the lake coal shipping department, but from 1908 on, he has been the manager of the Hanna fleet.

The election of Mr. Sabin as vice president of the Lake Carriers association is a progressive step definitely taken to offset the great loss of William Livingstone's efforts in behalf of lake shipping. He comes to the task exceptionally well fitted. Since 1906 he has been general superintendent of the canals at the Soo. He took a leading part in the widening and deepening of the canals, the construction of a new emergency dam, the construction of compensating works for Lake Superior, and the design and construction of new navigation canal with third and fourth locks. He was also connected with the construction of the West Neebish channel for the use of down-bound vessels, which was opened to navigation in 1908. Mr. Sabin has had under his direction and supervision since he assumed the office of superintendent of canals, the expenditure of millions of dollars on the canal system and this experience will be most valuable.

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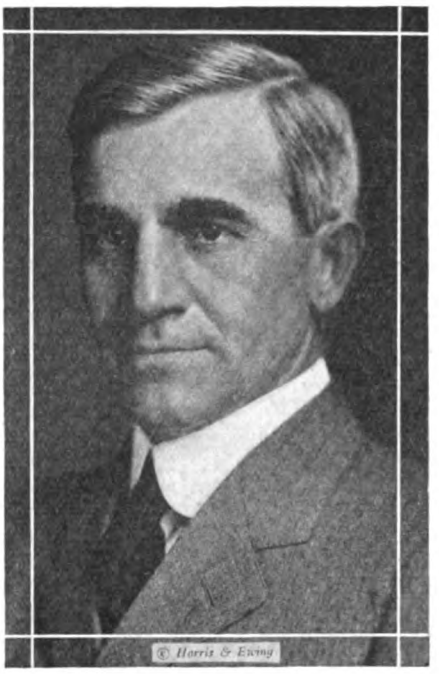
American Marine Week Closes
Better Business in Sight

TWO groups, powerful in their influence for the good of the merchant marine, quite independent of one another, though closely related, devoted most of marine week, November 9-14, in New York to spreading knowledge and appreciation of the science of naval architecture and marine engineering and its practical application to shipping as demonstrated at the marine exposition.

One group is composed of representatives of member companies of the American Marine Association, Inc., and the other group is made up of the members and associate members of the Society of Naval Architects & Marine Engineers. In order to avoid confusion the activities of each group will be described separately.

The Marine association this year sponsored a co-operative marine exhibition which was held at the Two Hundred and Twelfth Anti-Aircraft Regiment Armory at Sixty-second street and Columbus avenue, New York city, beginning Monday November 9 and ending Saturday November 14. Sixty-six companies or organizations had reserved space and showed actual machinery, or models, plans, maps and literature. To the observer there was less confusion and an earlier completion of all exhibits than at former shows which reflects credit upon Peter A. Sensenig, chairman of the exhibits committee. The character of the entire exhibit was exceptionally high. As an exhibition it compared very favorably both in the wide scope covered and in the effective arrangement for display, with any previous marine show. So that at 12:30 p. m. on November 9 the exhibits and exhibitors were ready to receive interested visitors.



HOMER L. FERGUSON
President Newport News Shipbuilding & Dry-Dock Co.

The attendance on the first two days, even allowing for the fact that most of the visitors had a bona fide connection with the marine industry and were therefore really interested, was exceedingly small. After this, however, the attendance materially increased and certain of the booths

GENERAL VIEW OF THE AMERICAN MARINE EXPOSITION HELD IN THE ARMORY AT SIXTY-SECOND STREET AND COLUMBUS AVENUE, NEW YORK FROM NOV. 9 TO 14, 1925—FROM LEFT TO RIGHT THE EXHIBITORS SHOWN IN THIS VIEW ARE, U. S. NAVY, RADIO CORPORATION OF AMERICA, INC., SPERRY GYROSCOPE CO., PORT OF BALTIMORE AND BABCOCK & WILCOX CO. THE ENTIRE EXHIBIT WAS WELL PLANNED AND ATTRACTIVELY LAID OUT

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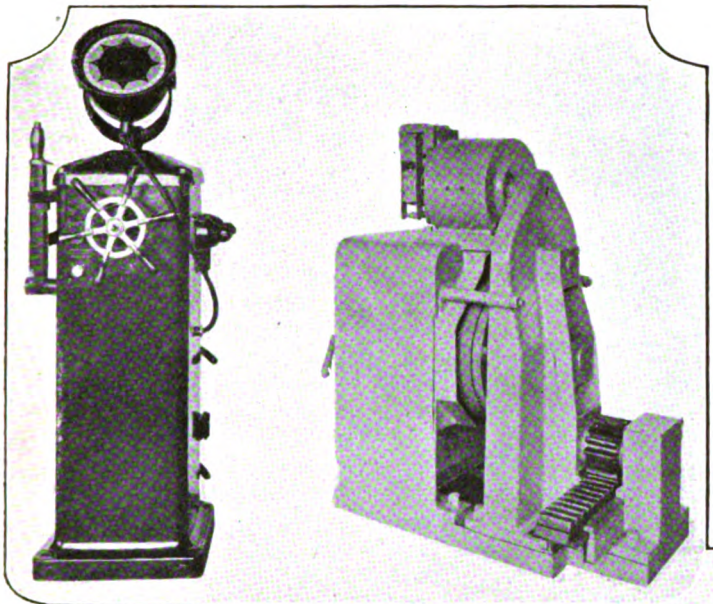
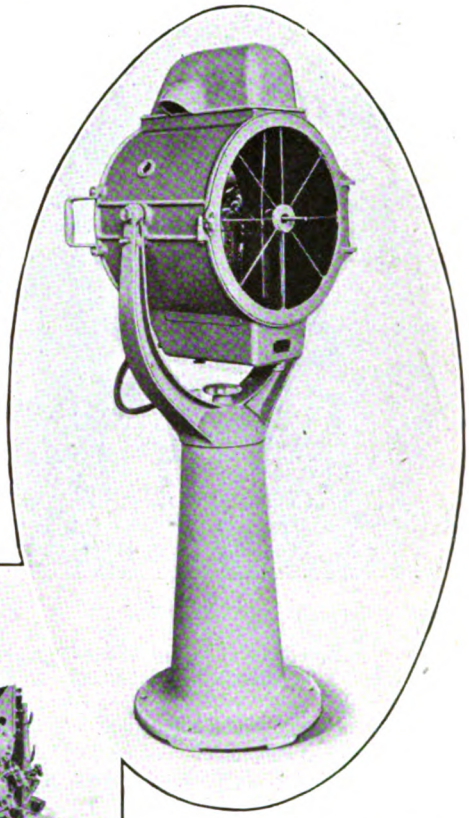
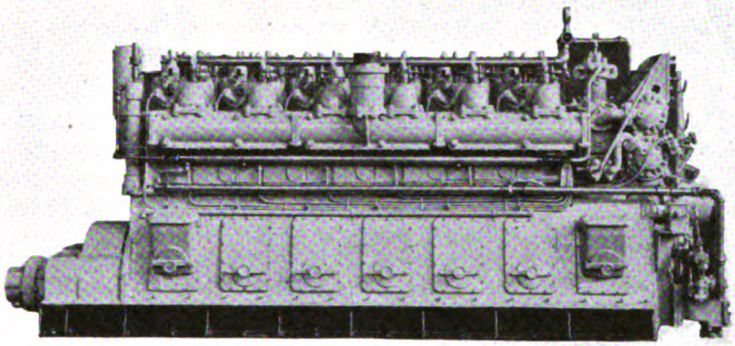
American Engineers Build Fine Marine Equipment



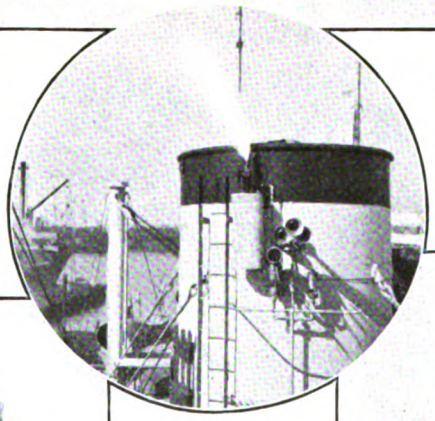
At Left—Two unit Gyro-Pilot, an automatic steering apparatus independent of the telemotor system.



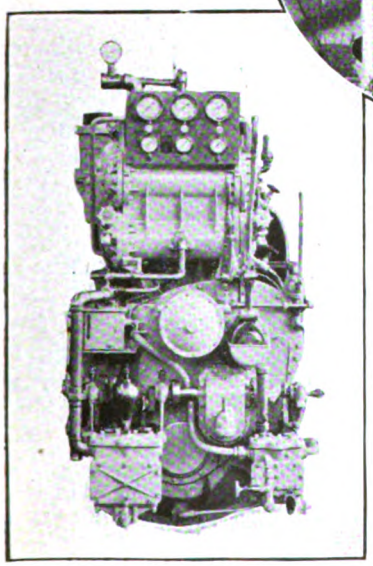
High Intensity Searchlight of Sperry type, 18 inches in diameter.



Above—Exhaust side view of Winton Model 116 Full Diesel Engine—This engine is one of three for the diesel electric propulsion now being fitted in the yacht Aloha.

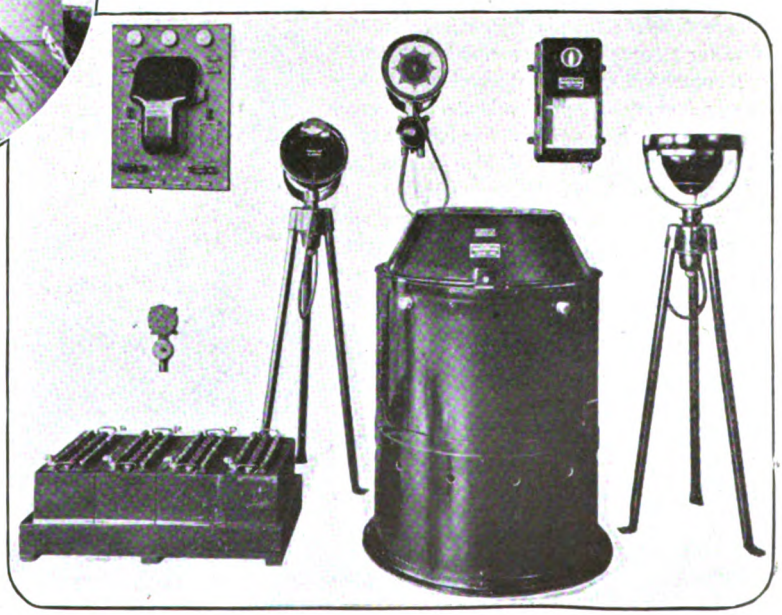


Below—Front view of Winton Model 116 full Diesel type engine.



Above — Visible air whistle suitable for Diesel ships.

Below—Complete Gyro Compass Equipment



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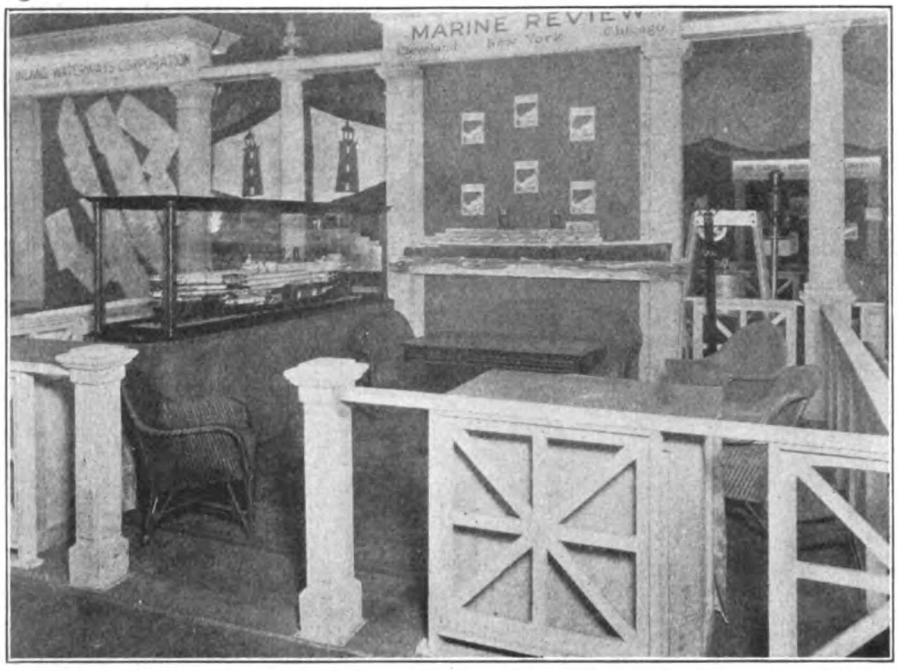


A VIEW OF THE SPACE OCCUPIED BY MARINE REVIEW AT THE MARINE EXPOSITION, 1925—A BEAUTIFUL MODEL OF THE GREATER DETROIT AND GREATER BUFFALO WAS EXHIBITED THROUGH THE COURTESY OF THE OWNERS, THE DETROIT & CLEVELAND NAVIGATION CO.

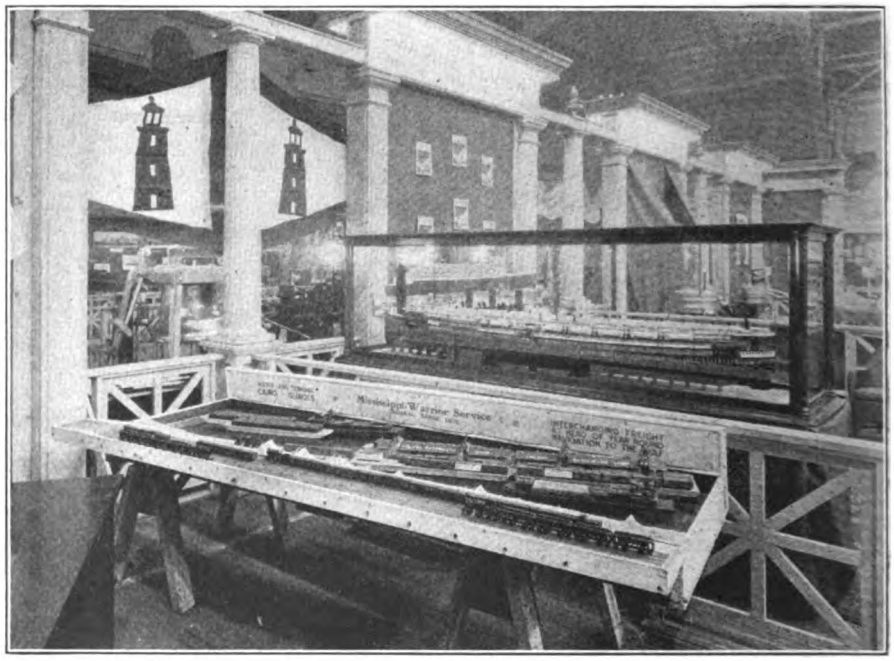
with novel or particularly interesting exhibits were very well attended. These fortunate exhibitors ended up the week feeling well repaid for joining in a marine show this year. Others felt that though the number of visitors was small the individual quality was high. Still others, and they were in a minority, felt keenly disappointed in the show on the score of lack of visitors and an indifferent attitude on the part of those that did come.

An off-hand impression of interesting features of the show would probably give first place to the crankless diesel engine, described and illustrated elsewhere in this issue. But it was not necessary to have a freak exhibit to draw attention, as great interest was shown for instance in the Walker propeller log, a newly invented instrument for accurately determining the revolutions per minute of each shaft and an average for all shafts, minute by minute, and also a reading of the speed in knots based on standardized speed and revolutions curves. There is something about instruments for navigation of a ship that interests the engineer as well as the deck officer, the designer and scientist as well as the layman. The writer noticed at one time in the booth of the Sperry company, Frank E. Kirby, the noted naval architect, W. B. Mayo, chief engineer of the Ford Motor Co. and Capt. Herbert Hartley of the S. S. LEVIATHAN. The Sperry exhibit included besides the regular gyrocompass a new type of bridge telegraph, a two unit gyro-pilot, giving a combination of electric and automatic steering, developed during the last two years, a visible air whistle, a speed indicator giving the number of revolutions and direction of rotation, a powerful searchlight and a number of other aids to navigation. An interesting demonstration of the earth's rotation was given by means of a suspended gyroscope.

The General Electric Co. exhibited a finely made steam engine driven generating set with switchboard, a turbine suitable for driving a generator or a pump, a motor of the new C D line for use below decks, a very powerful searchlight and an air mail beacon.

Many Interesting Exhibits

Centering around the actual equipment to be furnished the famous yacht Aloha, owned by Commodore Arthur Curtiss James of the New York Yacht club, interesting exhibits were displayed by three companies. This yacht is now being fitted with diesel electric propulsion. There are to be three 275 horsepower Winton diesel engines each connected to a Westinghouse 175 kilowatt generator and 30 kilowatt exciter furnishing current for a 640 horsepower Westinghouse double armature propulsion motor and the above and below deck auxiliaries. The Westinghouse Electric Co. was thus in a position to exhibit the actual pilot house control for regulating the speed of the propulsion motor in either direction from zero to 180 revolutions per minute, the dead-front switchboard, the propulsion motor and one of the generators and exciters for the Aloha installation. The Winton Engine Co., Cleveland, exhibited one of the three 275 horsepower Winton diesel engines built for the Aloha. The American Engineering Co. exhibited the electric hydraulic anchor windlass, steering gear and boat hoists which they had built for the Aloha. It is said that the new propulsion equipment for the



AN INTERESTING MODEL DEMONSTRATION OF THE WATER RAIL TERMINAL AT CAIRO ON THE MISSISSIPPI RIVER. THIS SYSTEM KNOWN AS THE INLAND WATERWAYS CORP. IS OWNED AND OPERATED BY THE UNITED GOVERNMENT AND IS IN CHARGE OF THE CORPS OF ENGINEERS U. S. A.

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Aloha is the lightest in weight of its kind ever built and, by careful distribution of machinery, will give the yacht better trim and increase her speed and cruising radius.

An interesting exhibit was displayed by the Peabody Engineering Corp. in their new combination pulverized coal and oil burner. It is possible to shift from pulverized coal for fuel to oil with very little trouble and in a very short time. Great interest was shown in this burner and it is believed that it has an exceptional future in view of the mounting price of oil. The Peabody viscosity regulator which is a new instrument for determining the most important characteristic of oils was also displayed. Its usual line of excellent ship equipment was exhibited by the Hyde Windlass Co., Bath, Me., and a hydro-electric steering gear was demonstrated in operation. There was also shown a Hyde electric telemotor, rudder indicator and electric engine order telegraph and reply. The De Laval Separator Co. exhibited a regular type of De Laval oil purifier used for lubricating oil on board ship. The new De Laval vapor light fuel oil purifier equipped with closed connections at inlet and outlet points, and with gasketed cast aluminum covers preventing the escape of vapor, making it possible to purify fuel oil above its flash point temperature, was also shown.

Electric marine galley and bake shop equipment was exhibited by the Edison Electric Appliance Co. A feature of this equipment was the electric marine range which is made portable so that it can be knocked down for moving through narrow companion ways.

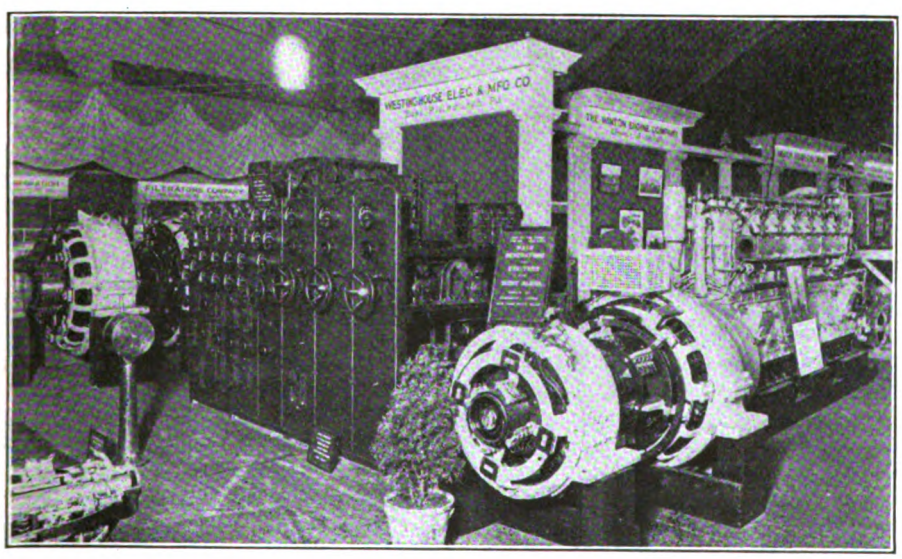
A steel anchor chain cable made by a process of casting one link into another instead of the old forging method of welding each link was exhibited by The National Malleable & Steel Castings Co., Cleveland. This method was first developed during the war and has become so successful that most recent ships including the MALOLO have been or will be equipped with this type of anchor chain cable.

Wide Range of Equipment

The Diamond Power Specialty Co. had an interesting exhibit of soot blowers as well as rear end and rear end front operated types of blowers for Scotch marine boilers. About 80 vessels of various types yearly are having the old system of steam hose or brushes replaced by this type.

Fairbanks, Morse & Co., exhibited one, 120 horsepower type "CO" four cylinder reversible heavy duty diesel type oil engine, one 15 horsepower generating set, and a direct connected air compressor and motor driven centrifugal pumping unit. This exhibit was very well planned and all of the equipment showed up to very good advantage.

Accessory engine room equipment, including a feed water heater, multi-whirl filter and grease extractor, a 55 gallon evaporator set, bentube evaporator section, Riley submerged type evaporator for distilled water on ships and a Riley oil heater were displayed by the Griscon-Russell Co. The Marine Decking and Supply Co.



THE WESTINGHOUSE CO., THE WINTON ENGINE CO. AND THE AMERICAN ENGINEERING CO. EACH EXHIBITED AS SHOWN IN THIS VIEW, THE ACTUAL DIESEL-ELECTRIC PROPULSION, AND THE HYDROELECTRIC WINDLASS AND THE STEERER FOR THE FAMOUS SEA-GOING YACHT ALOHA. CENTRIFUGE EQUIPMENT FOR THIS YACHT WAS DISPLAYED BY THE SHARPLES SPECIALTY CO., BUT NOT SHOWN IN THIS VIEW

COL. E. A. SIMMONS
President American Marine Association, Inc.

showed a complete line of its types of decking in various designs and colors. This company has received the order for supplying the decking for the MALOLO. A presurtite super centrifuge used for the clarification of diesel engine oil, and the standard open type machine used for the clarification of used lubricating oil were displayed with excellent effect by the Sharples Specialty Co., Philadelphia.

The Foster Specialty Co., New York, had an interesting exhibit of the Foster marine super heater elements, Foster manhole fittings for boilers and Foster boiler tube cutters. The Diehl Mfg. Co., Elizabeth, N. J., exhibited the Diehl electric absorption dynamometers which are used to measure the exact power developed or absorbed by engines, transmissions, completed automobiles and other rotating machines. Oil burner turbo blowers, steam turbine equipment, turbo transmissions and multi vane fans were displayed by the B. F. Sturtevant Co., Boston. The operation of the Sturtevant moist air fan kilns, an advanced system of drying lumber while still leaving it soft and full size, was explained.

The Todd Shipyards Corp. exhibited for the first time the new Todd rotary fuel oil burner for low pressure installations. This company also showed the Todd natural air register for marine and power plants, the Todd marine lamps and an A. R. welder of portable type.

Improvements In Construction

An improved air register firing front of the swing design giving an intimate mixture of oil spray and air combustion with highest efficiency was exhibited by the Coen Co., 50 Church street, New York city. A model of this type hooked up with

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the latest type "A" burner socket was shown. The latest design steel construction readily cleanable oil heater without coils in full size so arranged that it could be taken apart for observation was also shown.

The Radio Corporation of America exhibited the "R C A" radio direction finder with enclosed loop and superhetrodyne receiver. The wires are protected from weather and mechanical damage by being encased in bakelite tubing. Two sizes of transmitters were shown, one having a power rating of 500/750 watts and the other 200 watts. The first has a wave length of range of 600 to 2500 meters and the latter a wave length range of 600 to 900 meters. A large number of these transmitters have been installed on American ships and the results have been quite satisfactory.

Babcock & Wilcox exhibited a full sized section of a marine watertube boiler installation and also interesting details of the construction of various important parts of boilers such as the headers, oil burning apparatus and parts, steam stop valves in section and moving pictures of vessels of every type in which Babcock & Wilcox boilers and oil burning equipment have been fitted, were also displayed. This exhibit deserved and received a good deal of attention.

The above is intended to give briefly some idea of the extent of the marine show. It is outside of the scope of the present article to go into greater detail or to cover every exhibit. In the November issue of MARINE REVIEW all exhibitors with a brief outline of what was to be displayed are listed in alphabetical order.

On November 11, the annual fall banquet of the American Marine Association, Inc., was held in the Grand ball room of the Waldorf-Astoria, New York. The dinner was exceptionally well attended and a spirit of enthusiasm and good fellowship prevailed. Col. E. A. Simmons, president of the American Marine association, presided and acted as toastmaster. Rear Admiral Charles P. Plunkett, commandant of the Brooklyn navy yard, was the first speaker. He maintained that a merchant marine was necessary for national defense and vigorously attacked the attitude that we could trust the carriage of our commerce to foreign powers no matter how friendly those powers now were. Government ownership and operation, he pointed out, was inefficient and costly but that it was better to take this loss for a time than to jeopardize entirely a national merchant marine. Homer L. Ferguson, president of Newport News Shipbuilding & Drydock Co., the only other speaker, made a deep impression by his earnestness and sincerity. He said that the United States could not continue a strong and self-reliant nation without an adequate merchant marine and that no nation in history has remained great that relegated its commerce to foreign ships. The ability and skill to design and build ships cannot be easily acquired once lost and it is necessary that the existing trained personnel be provided with work so that they can live or this invaluable asset to the nation will in time be dissipated. Mr. Ferguson claimed that this would be a great loss to the country under ordinary conditions of international competition and that it would be an irreparable loss should the emergency arise when the defense of the country depended on ship-building. It seems impossible to conceive that such a grave warning should go unheeded or that there is any true American who sincerely believes we can get along without a merchant marine.

CAPT. C. A. McALLISTER
Vice President American Marine Association, Inc.

Following the speakers an entertainment in the form of a farce called "Heave Ho, Series of 1925", written by Durward H. Primrose, assisted by Capt. C. A. McAllister, was provided. The cast of characters was chosen from members of the maritime fraternity. This play proved interesting and entertaining as there were many witty sallies at present conditions in shipping.

Naval Architects Meet in New York

CALLED to order by Rear Admiral D. W. Taylor, retired, president of the society, the thirty-third general meeting of the Society of Naval Architects and Marine Engineers was held in the Engineering Societies building, 29 West Thirty-ninth street, New York, on Thursday and Friday, Nov. 12 and 13, 1925. Professional sessions began at 10 a. m. on each day.

Naval architects and marine engineers from all parts of the country gathered at the meetings to hear the presentations of formal papers on 14 varied and interesting subjects. The appended list of papers indicates the wide range covered.

Thursday, Nov. 12, 1925

1. *"New Developments in High Vacuum Apparatus,"* by G. L. Kothny, member.

2. *"The Effect of the Radius of the Fillets on the Stresses Around Rectangular Opening in Plates,"* by Thomas H. Frost, Lieut. Paul E. Pihl, C. C., U. S. N., and Lieut. Oliver D. Colvin Jr., C. C., U. S. N., visitors.

3. *"A Simple Method of Designing Propellers,"* by Rear Admiral Charles W. Dyson, U. S. N., council member.

4. *"Combined Stream Line Rudder and Guide Vanes, Latest Development of Contrapropellers,"* by Olav Overgaard, member.

5. *"Model Experiments With River Towboats—Stern Wheel and Tunnel Propeller Types Compared,"* by Capt. William McEntee C. C., U. S. N., council member.

6. *"Transportation on Inland Waterways,"* by Brig. Gen. T. Q. Ashburn, U. A. A., visitor.

7. *"Methods of Finding the Metacentric Height of Vessels for Operating Purposes and the Application of Graphics to the Solution of the Problem,"* by Henry C. Adams, second, member.

Friday, Nov. 13, 1925

8. *"The Design of Passenger Vessels for the Great Lakes,"* by Prof. Herbert C. Sadler, council member, and Frank E. Kirby, honorary vice

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president.

9. *"Torsional Vibration in the Diesel Engine,"* by Frank M. Lewis, member.

10. *"The Launch of the Airplane Carrier, U. S. S. Saratoga,"* by Ernest H. Rigg, council member.

11. *"An Analysis of a Failure of Keel Blocks in a Dry Dock,"* by Lieut. Commander Everett L. Gayhart, C. C., U. S. N. member.

12. *"Some Matters Relating to Large Airships,"* by Commander Garland Fulton, C. C., U. S. N., a member.

13. *"The Aerodynamics of Yacht Sails,"* by Prof. Edward P. Warner, member and Shatswell Ober, visitor.

14. *"The Double Acting, Two-Cycle Oil Engine,"* by Olav E. Jorgensen, member.

Many of these papers represent long periods of study, research and experimental work and are a valuable contribution to the art. G. L. Kothny, executive engineer of the C. H. Wheeler Mfg. Co., brought out in his paper that the cost of fuel consumption and operation of steam vessels could be reduced from 5 to 10 per cent by applying vacuum devices used in power plants ashore.

Thomas H. Frost, physics instructor at the Massachusetts Institute of Technology, pointed out that his studies on the effect of the radius of the fillets on the stresses around rectangular opening in plates makes it possible to find the proper radius for the fillets for the width of the hole, the width of the plate and the limiting stress. Admiral C. W. Dyson suggested a simple method of designing propellers and deplored the lack of systematic information about propellers on American ships.

In regard to the increased efficiency possible with the latest development of contrapropellers Olav Overgaard, chief engineer of the Goldschmidt Corp., called attention to an increase in speed of .75 knot for an American ship fitted with this device. Capt. William McEntee. C. C.. U. S. N., in a paper on model experiments with river towboats comparing stern wheel and tunnel propeller types estimates that a stern wheel towboat for the same tow and speed would require 650 shaft horsepower as against 700 shaft horsepower for a twin screw tunnel towboat. However with the slower running machinery of the stern wheel boat the machinery weights and displacement of the boat would be considerably greater than for the propeller boat.

Brig. Gen. T. Q. Ashburn, U. S. A., in his paper on transportation on inland waterways comes to the following conclusions after five years' experience in the operation of government facilities on the Mississippi and other waterways:

1. The utilization of our great

REAR ADMIRAL D. W. TAYLOR
President of the Society of Naval Architects & Marine Engineers

streams by common carriers is the only fair means of distributing the benefits of cheap transportation.

2. The rehabilitation of common carriers upon our navigable interior waterways can only be accomplished by governmental pioneering.

3. There were various handicaps to the restoration of water transportation in full vigor by government operation, that delayed, restricted, and hampered the accomplishment of the object sought, and such handicaps were avoidable.

Prof. Herbert C. Sadler and Frank E. Kirby discussed the design of passenger vessels for the Great Lakes with particular reference to the GREATER BUFFALO and GREATER DETROIT, the two new large steamers recently built for the Detroit & Cleveland Navigation Co. This paper is a most complete and authoritative work on the subject and the two sister vessels mentioned are fully described and illustrated, both hull and machinery. An important paper was contributed by Frank M. Lewis on torsional vibration in the diesel engine. This discussion is timely and of great value in helping to solve this difficulty. He makes the statement that it is generally considered better practice to raise the critical speed above the operating range if it is possible to do so, rather than to lower it.

E. H. Rigg, naval architect, New York Shipbuilding Corp., contributed an interesting and valuable paper on the launching of the airplane carrier U. S. S. SARATOGA. He made the remark that to lower 26,000 tons (the actual weight of the vessel) 36 feet vertically and at the same time to move this weight 1000 feet horizontally, was a job that demanded a certain amount of respect and caused considerable anxiety until it was safely accomplished. Methods employed in snubbing the speed were discussed. After the reading of the paper Admiral Taylor suggested that Professor Keith of the Massachusetts Institute of Technology be requested to submit a written discussion. Mr. Rigg suggested that a complete report on the launching of the airplane carrier LEXINGTON would be valuable as supplementing his own paper.

Commander Garland Fulton, C. C., U. S. N., presented a paper on large airships. He concluded by saying that mishaps to such ships should not cause cessation of determined efforts to overcome difficulties, pointing out that loss of vessels at sea does not deter from the continued use and development of ships. Mr. Sperry in the discussion following the reading of the paper suggested the elimination of the danger of gasoline by the development of diesel engines for power. The final paper of the sessions was contributed by O. E. Jorgensen, consulting engineer, Worthington Pump & Machinery Co., on

HERBERT C. SADLER
Professor of Naval Architecture, University of Michigan

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the double acting, two-cycle oil engine. The double acting two-cycle engine as compared with the four-cycle single acting engine will increase the earning capacity of a ship due to being lighter. Operating expenses

HENRY PENTON
Naval Architect

will be less due to the lower first cost and the lesser amount of machinery to be kept in repair. There is also a considerable reduction in space required thus making it possible to go back to a single screw installation instead of using twin screw arrangements in ships in the case of four-cycle single acting engines to avoid too bulky an engine.

Banquet a Great Success

The banquet, which is the established social event of the annual meeting of the Society of Naval Architects and Marine Engineers, was held with traditional success in the Grand ball room of the Waldorf-Astoria, New York, at 7:45 p. m., Nov. 13. Nearly 600 attended. The dinner seemed just as popular as in the years when shipbuilding and shipping were at their peak. Rear Admiral D. W. Taylor, C. C. U. S. N., retired, president of the society, presided, made the address of welcome and acted as toastmaster. The speakers were Maj. Gen. Charles P. Summerall, U. S. A., Rear Admiral Charles P. Plunkett, U. S. N., Dr. William F. Durand and Edward H. Ford.

General Summerall paid a tribute to American seamanship by very effectively recalling his experience in crossing the Atlantic early in 1917 on the PRESIDENT LINCOLN with 7000 troops on board. He laid stress on the efficiency of the officers and crew of the transport and how a plan was carefully worked out for saving the lives of those on board should the vessel be torpedoed. No detail was left to chance. Nothing happened to the PRESIDENT LINCOLN on that trip but some months later on her westward run carrying 1500 returning soldiers, many sick and disabled, she was torpedoed and outside of the 21 who lost their life in the attack every man was saved. The plan which had been so carefully formed and rehearsed, worked perfectly to the smallest detail. With men of such caliber in the navy and the merchant marine the nation has the best kind of claim to a place upon the sea for its ships.

Rear Admiral Plunkett in his customary vigorous and outspoken manner attacked the inefficiency and interminable red tape of the government. He said he was wrestling with the problems of how to build a $15,000,000 cruiser with $500,000, the amount so far available. He predicted that this amount would be expended before any work could be done in correspondence about projected changes. He said that there were great losses in the government operations through the tremendous over-

ELMER A. SPERRY
President Sperry Gyroscope Co.

head in cost keeping records, accounting and checking up. Though officers receive their commission from the President and are sworn to act with honor the system has labeled them as potential thieves and liars. He acted completely the blunt and impatient sailor and his audience was with him.

Doctor Durand on Aviation

Dr. William F. Durand, president of the Society of Mechanical Engineers and member and secretary of President Coolidge's air board, told of the latest developments in connection with his studies of the status of aviation in the United States with reference particularly to heavier-than-air craft. He said that the government had embarked upon a policy to support commercial aviation. This was evidenced by the air mail contracts entered into with private companies. Aviation must grow like every other industry upon its own merits and it can never be properly developed exclusively by a government agency such as the army for instance. The initiative and development which follow civilian interest in the art is essential to its growth. Doctor Durand said that speed, weight-carrying capacity and safety and reliability were the chief factors in the success of the airplane. Of these the first has been proved, the second is being studied to find an economic mean between freight and fuel. Safety and reliability has improved until a very gratifying position has been reached as compared with other methods. Four things are lacking, he said, and these are a legal status, a definite government program, modern equipment and the confidence and support of business. Government support, Doctor Durand said, will consist of laws, marked airways, landing fields and lighting systems for the routes, while the enterprise itself must supply proper machines, efficient motors and good pilots.

Announcement was made at the banquet by Admiral Taylor that in recognition of their services, Stevenson Taylor, president of the American bureau of shipping, and Frank E. Kirby, naval architect, had been elected honorary members of the society. This is an honor heretofore confined to eminent foreigners.

At its business meeting the society re-elected its officers for the coming year as follows: Rear Admiral Albert P. Niblack, U. S. N., Capt. Richard M. Watt, U. S. N., Charles Wetherbee and Harvy D. Goulder, vice presidents. Daniel H. Cox, secretary-treasurer, Thomas J. Kain, assistant secretary-treasurer. Rear Admiral D. W. Taylor, president of the society, was elected last year to a three-year term.

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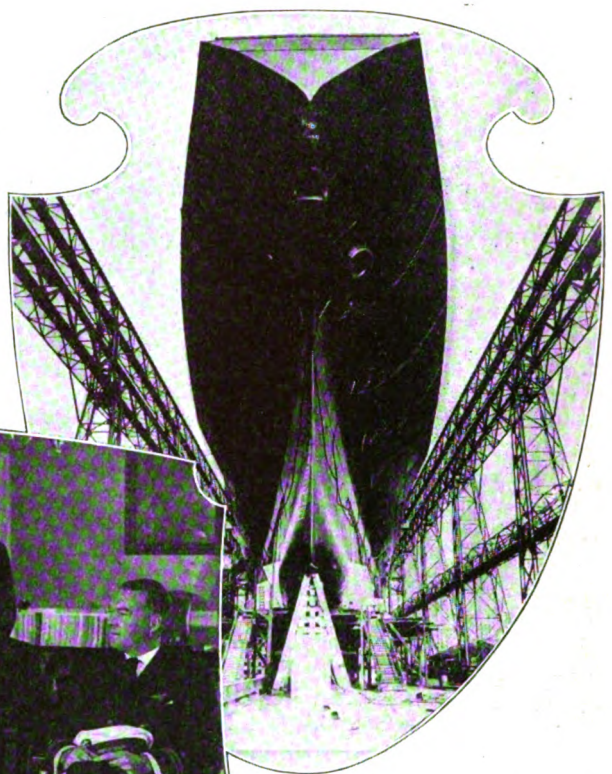
Photographs from Far and Near

Commander John Rodgers and officers of PN 9-1 which made the flight from San Francisco to Hawaii though the last few hundred miles were made under sail. Commander Rodgers and officers receiving congratulations of the secretary of the navy. From left to right: Lieutenant Byron Connell, Commander John Rodgers, Secretary Curtis D. Wilbur, Lieutenant Allan P. Snody, Lieutenant Lawrence W. Curtin, and Admiral Edward W. Eberle, chief of naval operations, standing in the rear.

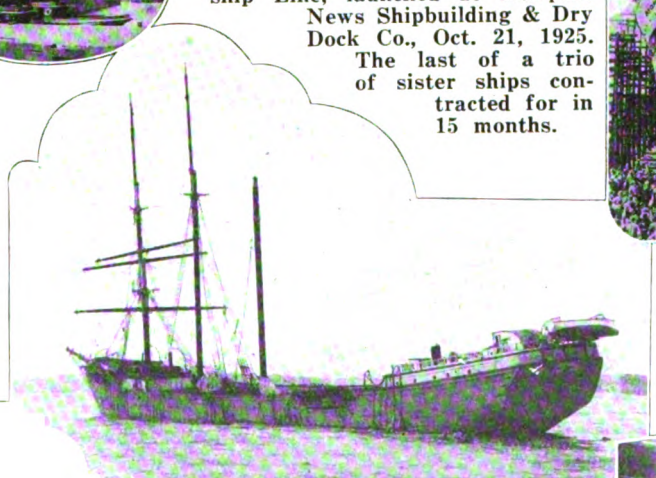


Looking head-on airplane carrier Lexington ready for launching at the Fore river plant of the Bethlehem Shipbuilding Corp., Oct 3. Note the bulbous bow, and deck coming to square end, to give maximum deck area for landing of planes.

Transfer of Tanker Montrolite to the American flag at Morse Drydock & Repair Yard, June 26, 1925.

L. M. Bowers laid up at the coal dock, Chicago.

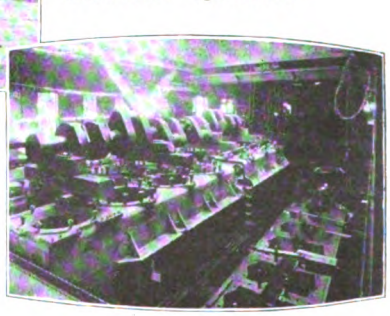
Steamer Mohawk, Clyde Steamship Line, launched at Newport News Shipbuilding & Dry Dock Co., Oct. 21, 1925. The last of a trio of sister ships contracted for in 15 months.



A typical scene on West street, New York City. Taken in the vicinity of pier 25, July 13, 1924.

Fitting crank shaft of one of four diesel engines in the dredge Clackamas. This dredge with Westinghouse electrical equipment is in successful operation.

Barkantine Molfatta at anchor in New York harbor after having weathered a 60-mile northwester on her last trip from Boston to New York. She limped in with two and a half of her five masts torn away. Her whole after section was badly damaged due to the shifting of her cargo of junked armor plate.



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From the Old Log Book

Stray Items About the Great Lakes, Atlantic, Pacific and Gulf Coasts and Inland Rivers from MARINE REVIEW Files of 10, 20, 30 and 40 Years Ago

DECEMBER, 1885

AN ACCOUNT of the life and work of Capt. Alva Bradley, published in the *Marine Record* (then the name of MARINE REVIEW) for December 1885, on the occasion of his death, brings home vividly the short space of time since pioneering days. Captain Bradley was born in Ellington, Conn., Nov. 27, 1814, and at the age of 9 accompanied his father's family to Buffalo, making the journey by wagon and canal boat, and thence to Cleveland in a vessel which reached that city September 1823. After sailing the lakes in various capacities until 1841 he became a shipbuilder, on his own account, at Vermillion until 1859 when he removed to Cleveland. In 1869 he brought his plant to this city and continued shipbuilding at the head of the river bed until 1880 at which time according to the old account he was the owner of more floating property than any other man on the lakes and the possessor of a handsome fortune besides.

* * *

His son M. A. Bradley who had been associated with him for a number of years before his death is well known in lake marine circles and is an honored and respected citizen of Cleveland today. So the lives of father and son span the period of the growth and development to their present proportions of lake transportation and the prosperous and populous cities on the Great Lakes.

DECEMBER, 1895

A FINE example of the spirit and wit of the best traditions of the navy is found in a little item in MARINE REVIEW of 30 years ago. When William E. Chandler was secretary of the navy and Admiral Meade was commandant of the navy yard in Washington, these two positive gentlemen got into a heated argument over some question of policy. The secretary annoyed at the admiral's position on the matter under discussion finally bluntly told the offending officer that if he persisted he would find it necessary to punish him by relieving him from duty ashore and sending him to sea. To which Admiral Meade replied: "Mr. Secretary, I haven't anything to say except that when it is punishment for an officer of the navy to be ordered to sea, what is your service coming to? I should like to go to sea, sir, good day."

* * *

Only 30 years ago under a ruling by Secretary Foster of the treasury department, engineers of steam vessels were not classed as officers. This came about through the desire of the secretary of the treasury to allow Englishmen who applied for United States citizenship to continue in charge of the machinery of the American Line steamers Paris and New York. This under the law the secretary could not do if they were classed as officers. We have often wondered at the low estate of the engineer officer and now the origin of it seems to be explained. It is more probably due however to the responsibility for important detail duties which gives the engineer little time for dress parade, hand shaking, and contact with owners and passengers. You might say he is always busy and always dirty, and as long as the machinery works well he is forgotten.

DECEMBER, 1905

WITH over 30 naval vessels under construction in the United States in 1905 the shipyards of the country less in number and smaller in capacity than now were not overtaxed. In 1925 with greatly expanded facilities there is practically no naval vessels under construction with the exception of the two airplane carriers. With only a comparatively small number of merchant ships needed, unless there is a decided revival in shipbuilding for the foreign trade, the future of the shipyards seems uncertain. However when conditions look the gloomiest things seem to shape up for the better. Repair work, new construction for coastwise shipping and conversion to diesel drive will be the nucleus on which the future must be built and as conditions in shipping improve the construction of larger liners to replace ships now inadequate and to expand existing services will be necessary.

* * *

When the new Cunarder Carmania sailed from New York in December 1905 every stateroom was filled. The total passenger list was over 2600 in addition to a crew of 710 men. Even according to to-day's figures for traveling this was certainly a very fine showing.

DECEMBER, 1915

IN DECEMBER 1915 the Union Iron Works, San Francisco had nine ships building or under contract and was busier than it had been for years. This condition was only partly traceable to the effects of the Great war as the program included five tankers for two American oil companies and a freighter and passenger boat for American steamship companies.

* * *

Secretary Daniels of the navy approved the plans of the Union Iron Works for the large graving dock at Hunters Point in San Francisco and agreed to furnish $50,000 *worth of work annually. This dock is* 1000 *feet long by* 40 *feet deep and* 110 *feet wide and can, of course, handle the largest war ship.*

* * *

The great war, at this time one and one-half years old, had begun to affect shipping rates favorably. Marine Review for December 1915 told how the coasting schooner Cora F. Cressy was fixed to load a cargo of 85,000 cases of oil out of Boston for Rio de Janerio at the high rate of 35 cents per case. The six master Edward J. Lawrence obtained a cargo of 5000 tons of coal from Boston to Barcelona, Spain at $10 per ton or $50,000 for the voyage with good prospects for a return cargo. This was only the beginning, as the war progressed rates such as the above would have been laughed at as ridiculously low.

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Apply Good Sense to Shipping

Hoover Declares that the Present System of Government Ownership and Control with Joint and Divided Responsibility Is Doomed to Failure — Experience in Government Clearly Calls for a Single Administrative Executive with Private Ownership and Operation as Soon as Possible as the Goal-Board Should Be Deliberative and Judicial

WHEN the present epoch has passed into history the bungling and the wisdom of today will stand out in clear relief and no doubt many will wonder why the correct solution of our shipping problem was not hit upon sooner. The answer will be that it was impossible to move in sufficient unanimity the members of the legislative branches. There has been too much of politics and too little of clear hard thinking. The thoughtful and considered opinions of the ablest leaders in the government have been ignored in favor of sectional and personal aggrandizement. The time has now come when congress should take a broader and more statesman-like view of the problem. It can do so by giving serious attention to the suggestions recently made by the secretary of commerce and by H. G. Dalton of Cleveland.

Private Ownership Is Essential

Setting forth some clean-cut suggestions as to the reorganization of the entire merchant marine, Secretary Hoover declared on Nov. 16 that the country never can expect a real or satisfactory merchant marine until it is owned and maintained by private enterprise. His views on the shipping question were given at the opening of the National Merchant Marine conference in the United States chamber of commerce building.

Joint and divided responsibilities loaded upon members of the shipping board in the last few years, Mr. Hoover pointed out, preclude the possibility of building up the merchant marine through the board. The secretary advocated that the whole fleet and other property should be transferred to the Emergency Fleet Corp., the president of which should be appointed by the President of the United States, subject to confirmation by the senate. He opposed incorporating such functions into the activities of the department of commerce. He thus backed the views of President Coolidge as to a one-man executive for government shipping. He also suggested an advisory board to act with the Fleet corporation president as well as regional committees, similar to those of the Federal reserve system. Mr. Hoover's views, as presented a short time ago also to Representative Wallace H. White Jr., acting chairman of the house merchant marine and fisheries committee, are summarized as follows:

"1. There are about 20 overseas trade routes which are the connecting links between our inland trade routes and foreign countries upon which our foreign trade is dependent.

"2. For the protection of our commerce from discrimination and from combinations which would impose onerous freight rates, we must maintain upon each of these routes the operation of very substantial shipping under the American flag.

"3. Commerce cannot operate upon uncertainty of transportation; it requires regular ferrylike sailings over essential routes.

"4. The type of ship which is best adapted to such regular service and at the same time is the most profit-largely requires the cargo-liner type. from 10,000 to 18,000 gross tons with a speed of 12 to 18 knots, preferably diesel-propelled, and having up to say, 20 per cent of passenger space. Replacements and extensions should be driven to this ideal.

"5. The national defense requires an American merchant marine and it also largely requires the cargo-liner type. If any type other than that of strictly commercial character is required, the extra cost of building and operating should be part of the military budget.

"6. We will never have a real or satisfactory merchant marine until it is owned and maintained by private enterprise. The government cannot operate cheaply. It cannot secure revenue as large as private enterprise. It cannot avoid the interminable difficulties and wastes of bureaucracy and above all, the direct and indirect political pressures. Furthermore, government operation and competition with private enterprise, with the United States treasury as a reserve fund, totally dulls private initiative. We must get out of government operation as quickly as we can establish private operation. It is useless to renew proposals to subsidize shipping.

"7. Some of the lines on these trade routes are today successfully operated by American flag private enterprise. Some of the government lines which are losing money today would pay if operated by private enterprise, and they could be disposed of under proper guarantee of continuance if private firms could be sure of future government policies. With the growth of the volume of trade most of the remainder of the lines could I believe, be ultimately disposed of to successful private operation. Some of them could be partially assisted by interested communities. All of them would be assisted by more liberal postal rates commensurate with those paid by foreign nations.

"8. It seems to us vital in the protection of our entire commerce that we must maintain American flag transportation on all these important trade routes. The government is now deeply in the shipping business, and I believe must continue to operate such routes as private operation cannot undertake until they have either been built up to the point where private operation can undertake them, or, alternatively, until they have proved impossible of successful operation.

"9. We need some criteria for determining when successful operation is impossible on a particular route. We do not believe this could be done legislatively. Administratively it could be determined by experience, but we must have a firm determination of the government to go on as long as the route shows improvement. No

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section of the country has a right to call upon the government perpetually to operate ships at a loss, but some local communities may be willing to join with the government in an experiment longer than might otherwise be the case.

"10. To our view it is vital if we are to go on, that we provide a form of administration of the government fleet that will reduce losses on those routes which the government must operate pending trade growth, and to provide methods which will facilitate these lines being disposed of to private enterprise.

"11. The shipping board was originally conceived largely for regulation of discriminations and other bad practices in ocean traffic. It was established upon a bi-partisan and later a regional basis. It was afterwards loaded with the most gigantic administrative task in the government. The necessarily divided minds of the best board on earth has always resulted in failure in executive work. Without considering the result of this case, which must be evident at every turn, I may point out certain characteristics which make it doubly hopeless as a form of organization to build up and administer the merchant marine. Each member has a four-way independent responsibility. He is responsibile for every act of the board to the country as a whole, to his particular constituency, to his political party and finally to congress. Responsibility to the President, the one responsibility which every administrative officer of the government should acknowledge under the spirit of the constitution, is denied by the board.

"Every member of the board, if left alone, could probably have made a success of the merchant marine before now. However, such a set up of joint and divided responsibilities, even if comprised of consummate genius, is the negation of possible success in business management and even of the very plan of our government—that there should be single-headed responsibility in executive and administrative functions. It is admirably constituted for semi-judicial or regulatory functions where a number of minds are needed and deliberative action is an advantage.

"12. Therefore our view has been that: The whole fleet and other property should be transferred to the Emergency Fleet Corp., and the president thereof should be appointed by the President of the United States, subject to confirmation by the senate and should be solely responsible to the President. This function should not be incorporated into the department of commerce which is a service agency to the whole merchant marine whether private or governmental.

"13. We believe that for certain major questions of policy an advisory board to the Emergency Fleet Corp., is desirable and this board should represent and co-ordinate the great government departments for they are very largely involved in merchant marine questions. Such an advisory board should comprise the secretaries of the treasury, war, navy and commerce, the postmaster general, the president of the Emergency Fleet Corp., and chairman of the shipping board.

"This advisory board should be called upon for approval or recommendation in the following major questions.

"a. Inauguration of new routes or abandonment of those being operated and the sale of ships or routes.

"b. In order to facilitate operation and disposal, authority should be given to the President upon approval of the advisory board to create subsidiary corporations for special lines and to offer stock in them to private operators or communities.

"c. We consider that the administration of the construction loan funds should be transferred to the treasury and loans made under the authority of the President upon recommendation of the advisory board.

"14. As many questions concerning the continuation or disposal of trade routes have a vital regional interest, and regional interest and views must be maintained, we suggest that regional committees should be established of important and experienced men in those regions which committees should sit with the advisory board in the consideration of such regional questions. This method has proved highly successful in the Federal reserve system and would entail no expenditure on the part of the Federal government and would secure a more effective regional representation in the development of the American merchant marine than at present, because such committees would take vision of the whole problem of overseas transportation in their region and its co-ordination with the rest of the country.

"15. The various service functions of the government to the merchant marine which now lie principally in the department of commerce, should be further consolidated by the addition of those minor items scattered through some five other departments and placed under the direction of an under secretary of merchant marine."

Commissioner Appointed U. S. Shipping Board

John Henry Walsh, general manager of the New Orleans port commission, who has been appointed the Gulf district regional representative on the shipping board to take the place of former Commissioner Frederick I. Thompson, resigned, will shortly arrive in Washington to begin his duties. He took his oath of office in Washington but returned to New Orleans to close up his affairs with the port commission before taking up his work with the shipping board.

Commissioner Walsh, who was recommended to President Coolidge by

JOHN HENRY WALSH
Recently Appointed Gulf District Representative on the United States Shipping Board

Senator Ransdell and Broussard, of Louisiana, is a graduate of the United States naval academy at Annapolis. He retired in 1919 from the navy, and has been with the New Orleans port commission since 1921. He is the second former naval officer to be on the shipping board, Admiral W. S. Benson having been a member for some years. Commissioner Walsh has been active in waterways activities. He was twice president of the American association of port authorities, and is a member of the National Merchant Marine association, and the Rivers and Harbors congress. He also is a member of the board of directors of the Marine association. He is a native of Wisconsin, but spent a large part of his earlier years in the state of Washington. His port work in New Orleans ought to give him a broad vision on maritime matters.

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Support the Merchant Marine

National Merchant Marine Conference Held in Washington Recommends Aids To Foster American Shipping

BESIDES recommending overhauling the government shipping bureaus, the National Merchant Marine conference suggested a subsidy for maintenance of specified ocean trade routes and a subsidy through mail contracts to provide for maintaining the higher type of service needed in the interests of the country's foreign commerce and for the transportation of mails.

These recommendations were made at the conclusion of the conference on Nov. 16 and 17 held at the headquarters of the United States chamber of commerce, attended by more than 100 representatives of manufacturing, labor, agriculture, financial and other interests from all parts of the country. The final recommendations included suggestions for the amendment of the LaFollette seamen's act, and for the removal to the department of commerce, as far as practicable, the government services relating to the merchant marine.

Running throughout the discussions during the conference was persistent opposition on the part of the 12 representatives selected by the American Federation of Labor, headed by Frank Morrison and Andrew Furuseth. The labor delegates returned a minority report, vigorously contending against conclusions that government aid for the merchant marine is necessary, especially attacking statements that a form of subsidy is needed because of higher costs of operation due to wages for crews.

Recommendations Ready

John O. Leary, president of the United States chamber of commerce opened the conference with an address in which he emphazied the importantance of the country deciding upon a definite and sane merchant fleet policy within the next year. He pointed out the relatively small progress made in the attempts to dispose of the government-owned fleet and the placing of it under private operation.

"The changed condition resulting from the war make it desirable that we review the whole subject in the light of present-day conditions and endeavor, if possible, to arrive at a peace time program for our merchant marine," Mr. O'Leary said, "the position of the United States has changed materially in the last ten years. In 1914 the American Merchant marine carried less than 10 per cent of our water-borne foreign commerce. In 1924 the American merchant marine carried in excess of 40 per cent of our water borne foreign commerce. Today we have a merchant marine. Whether we will have it ten years from now will depend largely upon the policies which are determined within the next year. * * * I am hopeful that the National Merchant Marine conference may be helpful to our government in developing a permanent peace-time merchant marine policy which will be in the interest of all of our people."

Secretary Hoover opened the discussion with an address on "Our National Merchant Marine Policies," in which he reiterated his views that the United States never will have a real or satisfactory merchant marine until it is owned and maintained by private enterprise.

T. V. O'Connor, chairman of the shipping board, who followed Secretary Hoover, also declared against government ownership of the fleet, if private operation is possible, but he declared that the shipping board had been hindered in its work of establishing a merchant marine by propaganda. "Those who apply the argument against government ownership to our present shipping situation," he said, "simply are attempting to mislead the American public."

Four Committees Report

The reports of the four committees, appointed by the chamber of commerce from various shipping interests and others, which have been making a six-month survey in various parts of the country of economic conditions relating to shipping, were heard and considerable discussion was given to these reports. The chairmen who made the reports were: Gen. J. G. Harbord, President of the Radio Corp. of America, on "Relation of Merchant Marine to American Foreign Trade"; Judge Edwin B. Parker, umpire of the mixed claims commission, Washington, "Government Relations to the Shipping Industry"; A. J. Brosseau, president, Mack Trucks, Inc., New York, "Government Aid to Shipping"; C. W. Lonsdale, Kansas City, "Disposal of Government Owned Ships." The reports of these committees were analyzed by a sub-committee of the conference and were combined into the 15 final recommendations.

Representatives of the American Federation of Labor and former Senator Atlee Pomerene, of Ohio, condemned the subsidy recommendation. Mr. Pomerene was a member of the committee that drafted the final conclusions adopted by the conference, but he said he could not support the report because a subsidy would not establish an American merchant marine.

Changes Suggested in Control

The conference recommended the complete reorganization of the government machinery for the administration of shipping affairs. The changes it provided are:

1. The reduction of the shipping board to three members with only semi-judicial regulatory duties.

2. The transfer of the administration of the government-owned fleet to the Emergency Fleet Corp., the president of which would be appointed by the President of the United States and would act under the supervision of a national advisory board also to be appointed by the President, with a member of the cabinet as chairman Regional advisory boards would sit with the national board in determining policies relating to the increase, decrease or sale of trade route services.

3. The application by the national advisory board, with the regional boards concerned, in accordance with principles prescribed by congress, of any system of government aid that may be authorized.

4. The concentration in the department of commerce, as far as practicable, of government services relating to the merchant marine.

"There is no thought," the conference declared, "of monopolizing shipping to and from the ports of the United States. It is well recognized that vessels under foreign flags can be depended upon to carry satisfactorily a portion of our export and import commodities. But it is clear that our people are determined that they will no longer depend almost entirely upon ships of foreign countries for their foreign trade, no matter what the cost."

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Launch Large Single Section Floating Dock

THIS illustration shows the Brighton Marine No. 4, a single section drydock which was launched at Staten Island, N. Y., Nov. 10, 1925. It is one of the largest single section drydocks in the country and took 8 months to build, using 1,500,000 feet of lumber. The length overall is 330 feet and the displacement is 3500 tons. A vessel of 4000 tons can be lifted. It will be placed at the West Brighton yards of the Delaware, Lackawanna and Western railroad, Staten Island, N. Y. Miss O. L. Loomis daughter of the president of the Lehigh railroad was the sponsor.

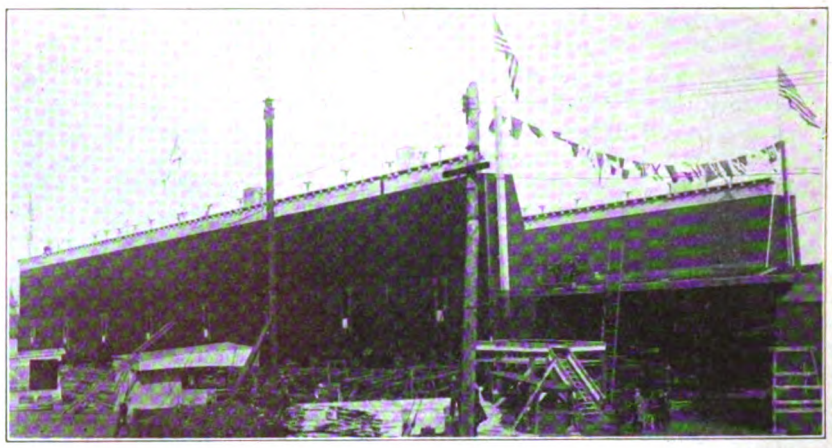
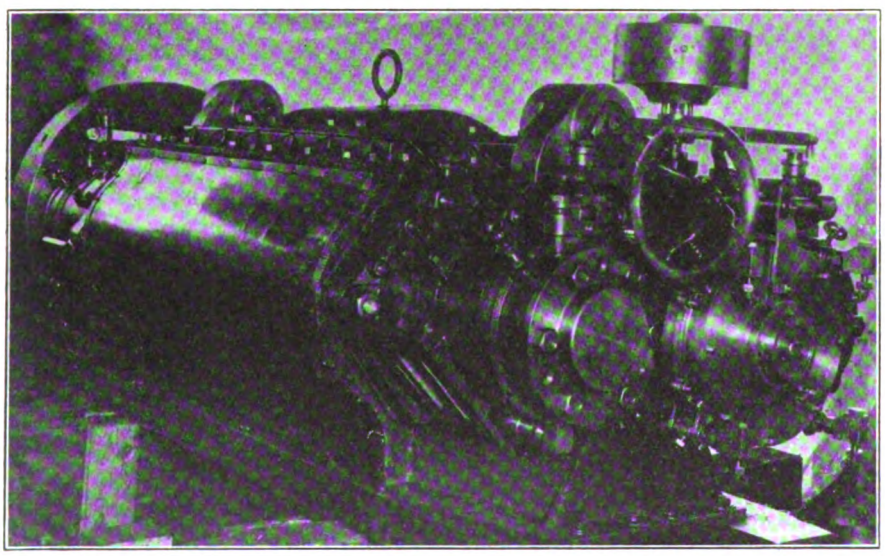


Exhibit a Crankless Diesel Engine

THE CRANKLESS DIESEL ENGINE CO., INC., 29 Broadway, New York city, exhibited the engine shown in the accompanying illustration, a 150 indicated horsepower, 2 cycle, 4 cylinder, 7½ inch diameter by 9 inches stroke, crankless diesel engine, at the marine show. A step piston for each cylinder acts as a scavenging pump and scavenges its adjacent cylinder. The crankless feature is simply an adaptation of a thrust block applied to prime movers.



GENERAL VIEW OF A 4-CYLINDER, 2-CYCLE, CRANKLESS DIESEL ENGINE OF 150 I. H. P. EXHIBITED AT THE MARINE SHOW NEW YORK, NOV. 9 TO 14, 1925

There is a wabble or driving plate fixed upon a main shaft at an angle approxmiately 22½ degrees. The power is transmitted from piston to wabble or driving plate through a ball socket connection built in the step piston body. The use of a step piston allows this ball to be of large diameter to take the bearing pressures which are, in this engine, about the same as applied in any diesel engine crankshaft and crosshead pin. The rear of the ball corresponds to a crosshead and slipper guide and the face in contact with the wabble plate corresponds to the conventional crankpin. An interesting point claimed in connection with the power as applied in this form of engine is that the cylinders are set 11 inches off the center line of the shaft and apply the full diesel pressure, approximately 500 pounds per square inch, about 3 degrees past top center but with the center of effort 11 inches tangent to the shaft, giving high mechanical efficiency.

This engine burns crude oil and the advantages claimed for this type of engine lie in the compact design and lesser dimensions in proportion to horsepower developed. The engine shown in the accompanying illustration has an extreme length over all of 9 feet, is 3 feet 4 inches wide, has a height of 2 feet, 8½ inches and measures but 16½ inches to the center of gravity.

It is claimed that engines of this design will occupy one-fourth to one-half the space and weigh only one-half as much as the ordinary reciprocating type. The engine shown in the accompanying photograph and exhibited at the marine show in New York, November 9 to 14, 1925, was operated backward, that is the pistons were actuated by the wabble plate which in turn was actuated by rotating the main shaft of which the wabble plate is an integral part. The engine had just been completed and has not up to the present been operated under its own power. Its appearance is simple and workmanlike. A great deal of interest was displayed in this novel engine by visitors at the show. It is real departure.

The twenty-first convention of the National rivers and harbors congress is to be held in the city of Washington, Wednesday and Thursday, Dec. 9 and 10.

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D. K. Chadbourne Becomes Manager W. E. I. Co.

Dean K. Chadbourne has been appointed general manager of the Westinghouse Electric International Co. to succeed E. D. Kilburn who was recently elected vice president of the Westinghouse Electric & Mfg. Co., according to an announcement from the Westinghouse International Co.'s headquarters.

Mr. Chadbourne was born in Elmira, New York, and graduated from Purdue

D. K. CHADBOURNE
Gen'l. Mgr. Westinghouse E. International Co.

University in 1906 with the degree of bachelor of science in electrical engineering. He was for six years connected with the Chicago office of the Allis-Chalmers Co. and then became district manager of the George Cutter Co. of South Bend, Indiana. In 1920 he joined the Westinghouse Electric International Co. and was made manager of the Far Eastern department.

William E. Chapman Dies

William Edward Chapman, prominently identified for many years with Great Lakes shipping and vessel operations, died Nov. 17, at his home in Cleveland. He was a native of Sandusky, O., where he was born in 1844. Lake shipping early drew his business attention. In 1893 he came to Cleveland to become associated with the firm of H. J. Webb & Co., vessel brokers. Later he was a member of the firm of W. C. Richardson & Co. and managed the fleet of this company. He was part owner of the freighter W. C. RICHARDSON which foundered off Buffalo in 1909. At the time of his retirement a year ago he was secretary and treasurer of the Morrow Steamship Co. and was also identified with the Paisley Steamship Co.

Lenape Burns at Sea

Off the Delaware coast on Nov. 17 the Clyde liner LENAPE was swept by fire. On the next day she was scuttled inside the Delaware breakwater after having made a 30-mile run from the open sea with flames sweeping her holds and roaring up through the cabins and decks.

All but one of the 350 passengers and crew had been safely landed by the coast guard cutters and pilot boats. The one passenger who lost his life became panic-stricken and jumped overboard. The survivors had spent a night of terror and uncertainty on the burning ship. Several passengers were injured but none seriously.

The resulting loss was stated by the Clyde Line officials to be about $3,000,000. The burning of the LENAPE was fought by the crew from 10:30 p. m. until 2 a. m. when she was grounded in 20 feet of water a mile and a half off Lewes, Del.

Sixteen Steel Scows To Be Built

The bureau of canals of the department of public works of the state of New York has prepared plans and specifications for the construction and delivery of 16 steel flat deck scows. It is expected that each scow will require about 75 tons of steel, or a total quantity of something over 1200 tons. The date for the receipt of proposals will be announced in the near future.

In the meantime further information on the subject may be obtained from R. K. Fuller, commissioner of canals and waterways, 55 Lancaster street, Albany, N. Y.

Should Seaman's Act Apply to Great Lakes

Representatives of the Cleveland chamber of commerce attended the national merchant marine conference on Nov. 16 and 17 to place before the conference the plea that Lake Erie be included in exemptions from the LaFollette seamen's act which provides among other things, for a minimum number of hands on ships.

Frauenfelder Becomes Head of New Company

Announcement has been made that the Equitherm Engineering Corp., 8-10 Bridge street, New York city, has acquired all assets, patents and good will of the Equitherm Control Corp., 13 Tillary street, Brooklyn, N. Y., as of September 18, 1925.

The business will be continued in the manufacture of patented industrial electrically operated temperature controls, automatic fire alarm and signal systems and kindred apparatus, including electrically operated valves.

J. BARRAJA-FRAUENFELDER
President Equitherm Engineering Corp.

J. Barraja-Frauenfelder, well known diesel engineer, has been elected president of the new corporation, Capt. W. A. F. Smith, vice president, E. B. Lane, engineer, and Mr. Ebenezer Hill, Hill Compressor & Pump Co. and Emerson F. Davis of Green & Hurd, attorneys, are two of the directors.

Practical control of temperatures is a matter of utmost importance on board ship as well as in industry ashore. It is to be hoped that the new company will contribute to the engineering art in the solution of temperature problems.

George E. Crisp Dies

George E. Crisp, treasurer of the Superheater Co., New York and Chicago, died on Sunday, Oct. 11, 1925, at his home in East Orange, N. J., at the age of 55 years. He had been in the service of the Superheater Co. for ten years. Mr. Crisp was well known in the power equipment and railway supply fields.

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Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties— A Record of Collisions, Wrecks, Fires and Losses

Name	Date	Nature	Place	Damage Resulting
Alleghany	Oct. 13	Disabled	Sea	Rudder—leaking
Alice L. Pengleton	Oct. 14	Disabled	Cape Henry	Rudder hd.
A. H. Olwine	Oct. 13	Ashore	Merrimac River	Not stated
American	Oct. 16	Foundered	Atlantic City	Total loss
A. F. Davidson	Oct. 16	Disabled	Cape Cod	Leaking
Absecon	Oct. 23	Collision	Cape Cod	Not stated
Ampullaria	Oct. 21	Ashore	Point Sur	Floated
Antique	Oct. 19	Disabled	Halifax	Prop.
Augusta G. Hilton	Oct. 26	Disabled	Nr. Cape Henlopen	Considerable
Andijk	Oct. 29	Disabled	Not stated	Not stated
Anandale	Oct. 30	Disabled	Delaware Breakwater	Leaking
Algiers	Nov. 1	Fire	Not stated	Abandoned
Araminta	Oct. 31	Ashore	Grand Bank	Total loss
Alda	Nov. 9	Collision	Nr. Portland	Stern
Aristides	Oct. 5	Ashore	Ponda Lowie Bay	Floated
American	Oct. 22	Hvy. weather	Nr. Atlantic City	Sank
Breedijk	Oct. 17	Grounded	Nr. Maaslins	Floated
Bay State	Oct. 21	Disabled	Holy Island	Engines
Brask	Nov. 6	Disabled	St. Johns	Leaking
Brasilien	Sept. 30	Fire	Leningrad	Not stated
Bealiba	Oct. 9	Collision	Newcastle	Badly
Batavier	Oct. 13	Collision	Gravesend	Not stated
Bessie H.	Oct. 12	Ashore	Heart's Ease	Total wreck
Burin	Oct. 13	Collision	Barcelona	Not stated
Bito	Oct. 19	Grounded	Kilometre 69	Floated
Borulos	Oct. 20	Ashore	Thabeltawaman	Floated
Briton	Nov. 12	Aground	Round Island	Floated
C. Gallagher	Oct. 10	Sank	Fort Washington	Raised
Canadian Miller	Oct. 10	Ashore	Second Narrows San Francisco	Not stated
Chas. M. Struven	Oct. 15	Disabled	Diamond Shoals	Sails—leaking
Colombia	Oct. 16	Disabled	San Francisco	Engine
City of Lahore	Oct. 20	Fire	Staten Island	Not stated
Cashier	Oct. 21	Disabled	Halifax	Leaking
C. L. Hutchinson	Nov. 1	Ashore	Gull rock, Manitou Isl.	Floated—considerable
C. J. B. Eads	Nov. 6	Grounded	Gary	Floated
Commonwealth	Oct. 26	Disabled	Off Point Judith	Damaged
Celtic	Oct. 27	Disabled	Boston	Lost prop.
Cairnavon	Nov. 1	Ashore	Nr. Peterhead	Total loss
City of Rome	Not stated	Collision	Off Block Island	Plates
Canadian Winner	Oct. 8	Ashore	Sand Head	Floated
Capitaine Illiaguer	Oct. 9	Collision	Not stated	Not stated
Carmelo Polizzi	Oct. 9	Disabled	Ceuta	Not stated
Davenport	Oct. 13	Aground	Puget Sound	Floated
Den Haag	Oct. 28	Disabled	Rotterdam	Steering gear
Donald II	Oct. 30	Collision	Off Lockport	Damaged
Dharma	Oct. 8	Collision	Off San Antonio	Not stated
Dronning Louise	Oct. 9	Ashore	Saltholm	Floated
E. C. Pope	Oct. 15	Grounded	Cleveland	Floated
Ervin J. Luce	Oct. 10	Ashore	Potato Island	Floated
Eemdijk	Oct. 15	Ashore	Bentick Island	Floated
Elven	Oct. 26	Disabled	Not stated	Steering gear
Edward Smith	Oct. 28	Ashore	St. Johns	Badly
Frode	Oct. 15	Grounded	Near Sorel	Floated
Frank Adams	Oct. 10	Struck pier	Grand Bank	Hull—rudder
F. L. Robbins	Nov. 9	Hvy. weather	Lake Huron	Plates
Frederick J. Lovatt	Nov. 5	Ashore	Bass Harbor	Leaking
Fram	Nov. 7	Ashore	Cape Henry	Floated
Flora	Not stated	Collision	Bremerhaven Roads	Damaged
Francis J. Elkin	Oct. 14	Disabled	Yarmouth	Rudder—leaking
Fridericus Rex	Oct. 15	Struck	Canal bank	Flooded
Gunner	Oct. 15	Explosion-fire	Cordova	Total loss
Galileo	Oct. 23	Grounded	St. John	Floated
Grandon	Nov. 10	Aground	Sandusky Bay	Considerable
Galtymore	Oct. 25	Aground	Ship John Shoal	Floated
G. M. Gilmore	Oct. 31	Ashore	Wood Island	Total loss
Guernsey	Nov. 4	Fire	Bronx River	Considerable
Gondola	Oct. 27	Ashore	Sandy Point Har.	Leaking
Gorizia	Oct. 8	Collision	Trieste	Damaged
Gull	Oct. 9	Collision	Not stated	Sank
Holliswood	Oct. 10	Gale	Bergen Point	Sunk
Hohenlinden	Oct. 13	Fire	Halifax	Damaged
Holland Maru	Oct. 12	Ashore	Providence Is.	Floated
Henry Endicott	Oct. 13	Disabled	Boston	Rudder—leaking
Hartford	Oct. 13	Disabled	Lewes	Rudder—leaking
Horace X. Baxter	Oct. 10	Aground	Off Everett	Not stated
Henry S. Grove	Oct. 28	Aground	Columbia River	Not stated
Herold	Nov. 6	Aground	Houston Channel	Floated—rudder
Hempstead	Nov. 8	Fire	Pier 4, Wallabout Basin	Considerable
Hampholm	Oct. 14	Stranded	Nr. Cape Delgado	Rudder—floated

Name	Date	Nature	Place	Damage Resulting
Iyo Maru	Oct. 15	Ashore	Vancouver Island	Floated
Ignazio Florio	Oct. 11	Disabled	Atlantic	Total loss
John F. May	Oct. 7	Collision	Baton Rouge	Sank
J. L. Reiss	Nov. 8	Grounded	Lake St. Clair	Floated
James E. Coburn	Oct. 23	Gale	Bangor	Stern
J. O. Webster	Oct. 26	Disabled	Rockland	Not stated
James L. Maloy	Nov. 3	Disabled	Portland	Leaking
Jufuku Maru	Oct. 1	Fire	Hamburg	Not stated
Jessmore	Oct. 6	Grounded	Off Greenwich	Floated
Jupiter	Oct. 16	Collision	Bremen	Port side
Kassala	Oct. 16	Collision	Charleston	Port bow
King City	Oct. 20	Disabled	Off Boston Lightship	High-pres. cylinder cracked
Kiyo Maru No. 1	Oct. 5	Sank	Off Shaketane Misaki Hokkaido	Total loss
Kulshan	Oct. 15	Grounded	Bellingham	Floated
Kirsten	Oct. 16	Disabled	Flushing	Steering gear
Lizzie D.	Oct. 14	Sank	New York	Not stated
Lake Gunni	Oct. 13	Stranded	Tortugas	Not stated
Lucy Evelyn	Oct. 14	Gale	Boston	Waterlogged
Lewis Luckenbach	Oct. 24	Aground	Off Claremont	Floated
London Mariner	Sept. 30	Fire	Thames	Not stated
Lucy R	Nov. 6	Collision	Mobile River	Sank
Marion Chappell	Oct. 13	Gale	Sea	Sank
M. Shiras	Nov. 6	Aground	St. Clair Flats	Floated
Martha Weaver	Oct. 26	Disabled	New London	Leaking
Mexico	Oct. 29	Ashore	Havana	Floated
Mountpark	Nov. 2	Disabled	Off Cape Henry	Rudder
Moritz	Nov. 6	Ashore	Off Norton Pt.	Floated
Malabar	Oct. 1	Struck pier	Wemyss Bay	Badly
Mercurius	Oct. 1	Ashore	Port Legue	Floated—damaged
Mongolia	Oct. 5	Disabled	San Francisco	Machinery
Marigo	Oct. 4	Collision	Austruweel Roads	Plates
Maroc	Oct. 4	Collision	Austruweel Roads	Above water line
Margarita	Oct. 8	Ashore	Fish Point	Floated
Nirvanna	Oct. 23	Collision	Cape Cod	Sunk
Northern Light	Nov. 11	Collision	Mobile River	Bow
Noble Maxwell	Nov. 8	Ashore	Greenbush	Floated
Oakmere	Oct. 15	Struck	Canal bank	Flooded
Oakover	Oct. 15	Disabled	Sheerness	Machinery
Petroleine	Nov. 3	Disabled	Dartmouth	Machinery
Pear Branch	Oct. 8	Collision	Off San Antonio	Considerabl
Plas Dinam	Oct. 7	Aground	Isla Cristina	Floated
Pocone	Oct. 9	Fire	Antwerp	Cargo
Prase	Oct. 19	Ashore	Breaksea Point	Floated
Richardson	Oct. 10	Fire	Rockland, Me.	Not stated
Roasalie Hull	Oct. 20	Aground	Nr. St. Augustine	Total loss
R. J. Paisley	Nov. 9	Aground	Lake St. Clair	Floated
Rotarian	Oct. 14	Struck sub. object	Port Aransas	Propeller shaft
Sea Monarch	Oct. 14	Collision	Port Townsend	Sank
Sac City	Oct. 20	Struck quay wall	Antwerp	Damaged
Stockwell	Oct. 19	Fire	Not stated	Considerab
Sic Vos Non Vobis	Oct. 16	Grounded	St. Michael de B.	Floated—bottom
Swiftsure	Oct. 29	Grounded	Nr. Montreal	Floated
Striklestad	Oct. 19	Disabled	Not stated	Rudder
Selma Creaser	Oct. 27	Disabled	St. Jacques	Leaking
St. Elmo	Oct. 1	Ashore	Nr. Spurn Point	Floated
San Jose	Oct. 2	Ashore	Off Shoeburyness	Floated
Secundus	Oct. 5	Disabled	Fort de France	Machinery
San Marco	Oct. 8	Collision	Trieste	Damaged
Silversprings	Oct. 8	Aground	Perth	Floated
Scarthe	Oct. 13	Ashore	Bjorko	Floated—leaking
Sirius	Oct. 12	Collision	Hamburg	Ashore—leaking
Truxillo	Nov. 6	Disabled	Horta	Feed pmps. and fur.
Treneglos	Oct. 1	Collision	Nr. Hamburg	Damaged
Thornley	Oct. 13	Collision	Gravesend	Port bow
Truro City	Oct. 20	Fire	Not stated	Considerable
Utilla	Nov. 3	Ashore	Plum Island	Floated
Unkai Maru No. 3	Oct. 1	Ashore	Off Kushimole, K. P.	Floated
Van Dyke	Oct. 15	Explosion	Point Breeze pier	Sank
Vesuvio	Oct. 21	Disabled	Genoa	Boiler
Veendijk	Nov. 4	Disabled	Algiers	Machinery
Volga	Oct. 1	Disabled	Brindisi	Rudder
Ville De Paris	Oct. 2	Disabled	Swansea	Engine
Virginia	Nov. 10	Ashore	Arecibo	Total loss
Wandsworth Works	Oct. 19	Collision	Bremen	Damaged
Wayfield	Oct. 15	Struck rock	Kotka	Not stated
Wilfred	Oct. 19	Ashore	Tacuani	Not stated
Westway	Nov. 8	On rocks	Off Briar Island	Total loss
W. J. Crosby	Nov. 13	Aground	Nr. Bois Blanc Island	Not stated

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Equipment Used Afloat, Ashore

For Separating Oil from Water—Use Spray Method of Painting

THE pollution of harbors with oil discharged from ships when pumping bilges and discharging ballast water from fuel oil and settling tanks has caused the increasing agitation against the practice to reach the acute stage.

The oil separator described here and developed by the Bethlehem Shipbuilding Corp., provides a simple means of separating oils from bilge and ballast water, thus reclaiming the oil and causing only clean water to be discharged overboard.

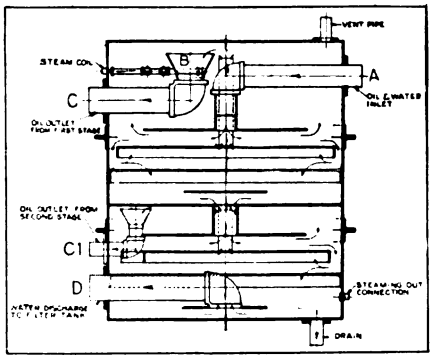
The separators and filters are compact in construction and occupy a comparatively small space. They have no working parts requiring repairs or renewals, and an occasional cleaning is readily accomplished by steaming out.

Separation is affected by utilizing the gravity principle by alternately increasing and constricting the flow and simultaneously changing the direction of the flow. The velocity is checked in the increased flow areas, thus allowing the oil to separate from the water.

Steam coils are provided at the top oil outlet to cause the oil to flow more freely, and at the bottom for boiling out when cleaning. Bolted plates are fitted for access to the upper and lower stages.

To further purify the water, the discharge from the separators is led from the connection D slowly through a rectangular filter tank to remove any minute particles of dust or foreign matter which may have been coated with oil and thus passed through the separators.

The filter tank is fitted with a hinged cover for inspection purposes. A scum pan is placed near the top to draw off the oil, and a steam coil is installed at the bottom for boiling out when cleaning. The water outlet is piped directly to the side of the ship, with the discharge valve located above the load water line.



SECTION THROUGH A TWO-STAGE BETHLEHEM OIL SEPARATOR

Separators are built in single units from 10 to 100 tons mixture capacity per hour, or in two or three units, depending upon the space available on the ship. On ships where hatches and bulkhead doors are limited in size, units can be built in small sections and bolted together aboard ship.

Any suitable size pump having suction connections from the bilge and ballast tanks, may be used for the system by simply installing a discharge valve and the necessary piping to the separators.

The mixture of oil and water enters the separator at connection A at the top and is directed down into the enlarged flow area between the baffle and the top on an inverted chamber, thereby checking the velocity. The oil, separating from the water, collects under the baffle and moves slowly outward until it reaches the edge of the baffle, and then rises to the top of the separator, to be drawn off through a funnel B and returned to the oil tanks through the pipe C.

The major portion of the separation takes place in this upper space, and the water, freed of the greater portion of oil, flows over the outer edge of the inverted chamber down into the contracted annular space next the separator shell, thereby increasing the velocity.

The flow then encounters an annular baffle ring, and is again changed in direction, the mixture entering the enlarged flow area under the inverted chamber; where the velocity is again checked and most of the remaining oil separates out and collects under the chamber. The oil rises through escape pipes to the top of the separator and is drawn off through the funnel B.

Although separation is now practically complete, the whole cycle described above is repeated in the second or lower stage of the separator, which removes the remaining traces of oil from the water, the oil being drawn off through the connection C-1.

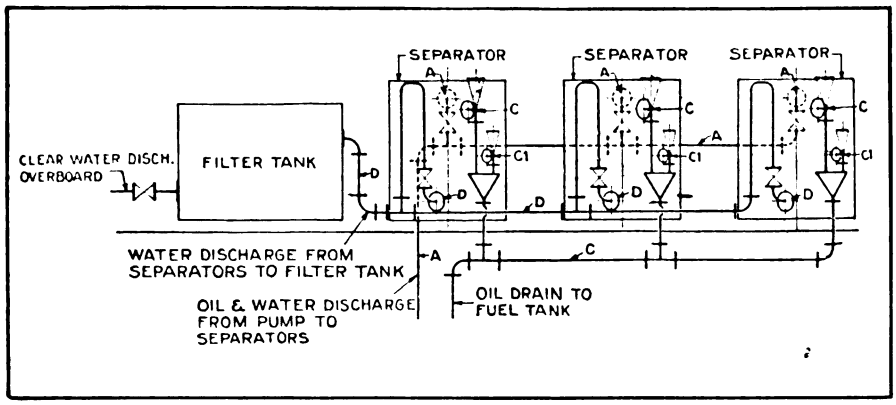


DIAGRAM SHOWING A TYPICAL SHIP BOARD INSTALLATION OF THREE BETHLEHEM OIL SEPARATORS AND THE FILTER TANK

Paint by Spray Method Applied to Ships

Beginning at about the time the keel is laid down in the shipyard and continuing throughout the life of the ship until no longer fit for service, painting of hull, outside and in, of the superstructure and of the interior quarters, is a constantly nearly daily recurring task to stave off rapid deterioration. To neglect this most important aid in the prevention of the consuming effects of wind and weather and salt air would mean great loss in seriously shortening the legitimate life of the ship.

Modern development has revolutionized methods of doing almost all kinds of work. Such development has greatly increased the output of labor and in many instances improved the workmanship, substituting the precision and thoroughness of a mechanical operation for the less skilled hand operation. Many important industries ashore have adopted mechanical means for applying paint finding it more economical and more thor-

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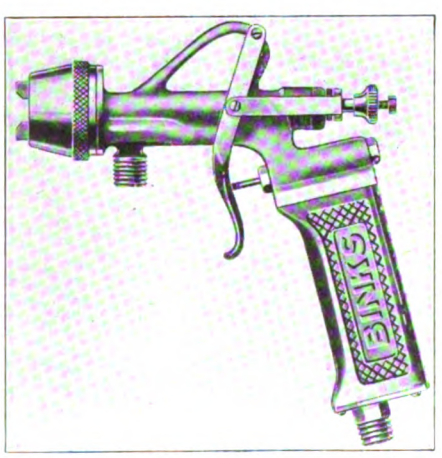
ough than the use of the hand brush. To a much lesser extent this method has also been adopted for applying paint to the ship's structure during construction, and even less so during the service life of the ship after completion.

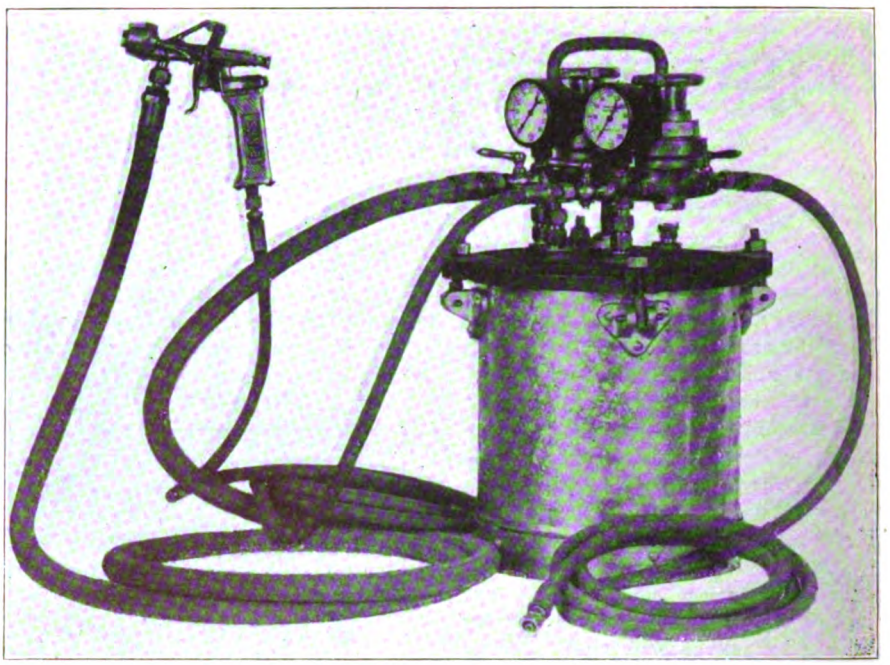
For this reason it would seem to be worth while to illustrate and describe an efficient spray painting equipment. This equipment consists of an air gun which takes the place of the brush and by means of which the paint is sprayed on, the necessary air and material hose and the material pressure container operated by available air supply on board or about the ship or by means of an individual air compressor unit driven either by an electric motor or a small independent engine.

The equipment illustrated and described herewith is manufactured by the Binks Spray Equipment Co., 3126 Carroll avenue, Chicago. To obtain a perfect spray coating which is more durable than the hand applied, perfect atomization must take place, permitting the fine particles of paint pigment and carrier to knit together and create a more binding degree of adhesion than in any other manner. The gun shown in the accompanying illustration has straight frictionless side air ports which gives a flat spray without great pressure drop. Compressed air when released through these side ports expands to a degree before striking the material. The air ports are brought close to the material outlet and the expansion of the air is confined to the grooves. Therefore, a finer atomization is produced, due to the expansion of the material assisted by the patented method of directing the compressed air in the spray gun.

The first pull of the trigger releases a clean blast of air for dusting off the surface to be coated. A further pull of the trigger produces a perfect spray uniform across its entire width. This enables an operator to work close to the surface placing materials exactly where directed, thus eliminating waste and excessive spray mist. Large flat surfaces are covered with a horizontal or vertical flat fan-form spray, whichever is convenient for the operator. For narrow surfaces or trim work the round spray is used. No time is lost in changing the position of the sprays, as this is done by an instant adjustment requiring only a touch at the nozzle head. The amount of paint or coverage desired is regulated by a material control adjustment. The mechanical construction of the gun is simple and sturdy so that it will stand up against hard usage. For painting surfaces where it is necessary to reach some distance, as from a staging on the side of a ship, extension handles can be provided.



AIR GUN USED FOR SPRAYING PAINT. THE CONNECTION AT BOTTOM OF HANDLE IS FOR THE AIR PRESSURE WHILE THE CONNECTION NEAR THE NOZZLE IS FOR THE MATERIAL



SPRAY GUN AND PAINT CONTAINER WITH LINES OF HOSE FOR THE AIR AND THE MATERIAL. THE SECTION OF HOSE TO THE RIGHT IS FOR AIR FROM THE COMPRESSED AIR RESERVOIR

Paint materials or fluids which are to be applied are placed in a container and sufficient pressure is supplied by regulation to insure a proper and constant flow of paint through the hose to the gun. It is very important to have a correctly designed pressure container. Simple regulation by the operator is a first consideration. The pressure containers supplied with this equipment and shown in the accompanying illustration have a well designed control head fitted with two pressure regulators. One of these governs the working pressure of the gun and the other controls the material flow through the hose to the gun. The regulators are fitted with pressure indicating gages and necessary fittings and safety relief valves arranged and mounted for balance and convenience. The head of the container is secured to the body, a drawn steel tank, by toggle bolts for ease and speed of removal and replacement. The tank opening corresponds with its diameter, thus permitting the insertion of inner receptacles or liners. It is, therefore, possible instead of placing the paint or fluid directly in the pressure tank, to place these materials in containers which are then inserted into the pressure tank. This makes it possible to change quickly to different colors of paints or materials without the necessity of cleaning the container between each refilling or change of materials. Each pressure container is furnished with one inner receptacle constructed of heavy tin and fitted with inside hand grips.

Not only thus proper paint spray equipment offer great economies in time and labor costs, but a better appearance and a more thorough coating is insured for all surfaces. Every little crevice and inaccessible corner is sure to be reached when paint is applied with spraying equipment, specified for this purpose. Good painting protects the surface it covers and the resulting neat appearance signifies care and progressiveness and constitutes a real asset. A clean, neat, well kept up ship is likely to be a well run ship in every other respect and therefore pays well.

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Dock Management Progress Section

How Successful Dock Operators Have Met
Problems of Giving Best Service to Ships

New municipal owned piers at Charleston, S. C.—A fine example of the improvements carried out by the city in its determined effort to increase the trade of the port

Why Charleston Should Attract Trade

Good Harbor and Port Facilities—Saving in Sailing Time—Low Charges

By H. F. CHURCH
Assistant Commissioner of Port Development

FOR the length of its coast line and the size and productivity of the country, there is a scarcity of good ports in the United States. Not that any one of the excellent ports now doing a good business couldn't take care of a much greater volume of trade, but too great a concentration on a relatively few outlets to the sea will have the effect of retarding the normal growth of trade which may be anticipated with certainty, in areas not conveniently situated with respect to these particular ports. In other words, as trade grows each port will ultimately be hard put to it to keep up with the demands made by its own logical territory or section without reaching out to tap sources at great distances.

A look at a map of the Atlantic coast of the United States indicates clearly that there is great need for port development, particularly south of Norfolk, Va.

Natural advantages such as a good harbor and location as the nearest and most accessible outlet for an important area with a growing demand to buy from and sell to markets reached by sea are at the basis of any port development. But use cannot be made of a port even so favored if economical and convenient facilities are not provided for the loading and discharge of cargo and for proper rail connections for picking up and distributing the goods brought in and to be sent out. Charleston, S. C., fulfills all of these conditions and its continued growth as a port will be a great boon not only to the state of South Carolina, but to other large areas. Charleston is no upstart as a seaport. Its history dates back to early colonial days. There has been recently a significant awakening to its possibilities.

Realizing that its property lies seaward, the city has established thoroughly municipal agencies for the development of its port. A port utilities commission, a two million dollar incorporation, was recently formed to handle the physical operation and maintenance of the city's municipal owned facilities, including the new Union pier property, the Columbus street terminals, the giant port terminals, with a storage capacity of 1,500,000 square feet leased from the United States shipping board, the city belt line, with 13 miles of main track and sidings, and several other minor properties. Col. Nathaniel B. Barnwell, the chairman of the commission, is also head of the state

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port committee recently appointed by Governor McLeod of South Carolina, when Charleston was made the official port of the state. Mr. J. Russell Wait is general manager.

The bureau of foreign trade and port development, under the direction of Dr. R. S. MacElwee, commissioner, and formerly director of the United States bureau of foreign and domestic commerce at Washington, is a municipal agency for the development of the port through suitable publicity, the bringing in of new carriers, attracting new industries, the extension of foreign trade and, providing specialized service relative to shipping. This bureau conducts a permanent office at Louisville, Kentucky, and a temporary office in New York.

The Charleston traffic bureau, under the supervision of Commissioner Thos. J. Burke, has been instrumental in removing numerous rate discriminations and in effecting many traffic reforms for the port.

In recognition of its growing importance as a world port, the national foreign trade council officially voted to hold its 1926 convention at Charleston. In 1924 and 1925 the council's gatherings were held in Boston and Seattle respectively.

The most active and conscientious port commissions and trade bureaus, however, could make no headway in developing Charleston as a port were there not some very definite practical advantages for shippers. Charleston claims to have a shorter average sailing distance to the principal key points of the world than has any other competitor port on the Atlantic or Gulf coasts.

Taking Liverpool, Gibraltar, Colon, Habana and Pernambuco as key points, Charleston's comparative average in nautical miles is shown in the following table:

Charleston	2,599
Norfolk	2,611
Jacksonville	2,634
New York	2,638
Boston	2,639
Baltimore	2,733
New Orleans	3,061
Montreal	3,178

Computed on the basis of a freight ship averaging 10 knots there would be a saving in sailing time of eight days and 22 hours for each round voyage from Charleston to Liverpool over a similar round voyage from New Orleans to Liverpool. The same time would be saved in a round voyage from Charleston to Bordeaux as compared with a round voyage from New Orleans to the French port. A round voyage from Charleston to Honolulu would take four days and 22 hours less sailing time than would a round voyage from New York to Honolulu. Favorable comparisons in sailing time could be made as between Charleston and New York to Colon, Iquique, Georgetown, B. G., Vera Cruz, Yokohama, Melbourne and Port Antonio.

Extensive Rail Connections

The advantage of Charleston's short average ocean haul is further augmented by its central location to the principal producing sections of the Southeast and the Middle West. Served by four trunk line railroads with over 15,000 miles of track that tap the country's most fertile producing regions and prosperous manufacturing centers, it is possible through favoring rail differentials to move commodities at a low cost down to the seaboard, where modern storage and handling facilities and a diversity of ocean services insure economy and efficiency in distribution.

Through harbor improvements and a tidal variation of 5.2 feet, Charleston has deeper water than any other harbor on the Atlantic and Gulf coasts south of Norfolk, Va. There is a 30-foot channel about 600 feet wide from Charleston lightship to the plant of the Charleston Dry Dock & Machine Co. with but small tendency to shoal. From the bar to the city piers there are but three changes of ship's course with ranges well marked day and night by buoys and range lights.

As a result of dredging done by the navy department under the naval appropriation act of Aug. 29, 1916, a channel has been completed, 30 feet deep at all stages, 600 feet wide in straight reaches and increasing to 1000 feet at bends. This channel extends from deep water in Cooper river to the United States navy yard, the existence of which, six miles above the city, insures that the approach channel will always be kept dredged to accommodate the largest sized ships. Congress has authorized a channel 40 feet over the harbor bar at mean low water and 1000 feet wide to the navy yard.

CHARLESTON LOOKING SEAWARD—ONLY 7½ MILES FROM THE OPEN SEA—ONE OF THE FINEST NATURAL HARBERS SOUTH OF HAMPTON ROADS

COOPER RIVER WATERFRONT OF THE PORT OF CHARLESTON. ALL OF THE PIERS ARE EASILY ACCESSIBLE

In 1905 and again in 1912 the Atlantic fleet anchored in Charleston

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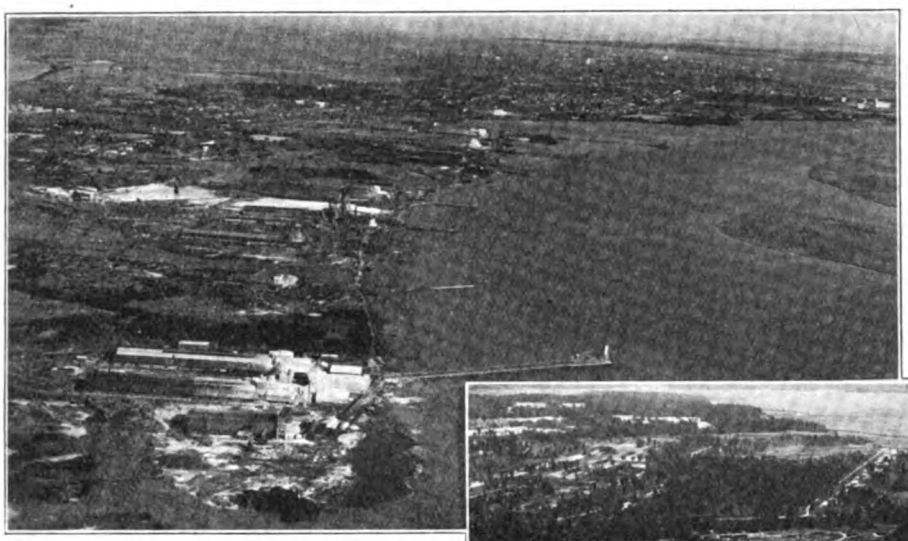

ASHLEY RIVER WATERFRONT OF THE PORT OF CHARLESTON. MANY OF THE FERTILIZER INDUSTRIES ARE LOCATED ON THIS STREAM

harbor and the S. S. EDGAR F. LUCKENBACH has entered the harbor drawing 33 feet 5 inches. Speaking of Charleston's splendid anchorage facilities, Rear Admiral F. W. Dickens reported to the navy department: "After entering the harbor 50 battleships with 26 feet draft can be anchored in Charleston harbor, at single anchor, 400 yards apart, with a scope of 45 yards of chain."

Good Harbor and Low Charges

It is second only to Galveston in proximity to the open sea, being but 7½ miles from the protecting jetties that flank the entrance to the harbor. Such easy access to the sea means a saving of time in turn around and in insurance on hull and cargo. Few ports on the Atlantic seaboard offer to ships the economy of towage rates to be found at Charleston. Here the majority of the wharves are of the marginal type and because of ample turning space, vessels under power are not dependent upon tugs for docking.

Port charges are reasonable and ships handling cargo over Charleston wharves do so free of cost. There is no charge assigned against a steamer at this port for layage or dockage where the vessel works cargo. Delays from congestion, labor strikes, storms, excessive high water or winds are almost unknown.

The foreign trade of Charleston is a substantial item in the traffic of the port. Cotton, cotton by-products, tobacco and coal predominate as exports and fertilizer materials and mineral oils compose the bulk of the imports. General cargo has increased. In 1923 foreign trade for the port increased 61 per cent over the previous year and in 1924 this gain was held, although valuations of the foreign trade of the port fell off due to decline in prices of several staple commodities. Actual tonnage, however, in identical commodities, increased 134,614 short tons over the preceding year.

CHARLESTON'S $11,000,000 PORT TERMINALS—THIS GIANT PLANT ERECTED AS ONE OF THE UNITED STATES ARMY SUPPLY BASES DURING THE WAR HAS A STORAGE CAPACITY OF 1,500,000 SQUARE FEET

Trade Constantly Growing

Charleston's foreign trade for the past four years, based on U. S. engineer figures, shows the healthy growth of the port's foreign commerce.

	1921	
Imports	50,109 tons	$ 3,299,196
Exports	514,421 tons	11,076,585
Total	564,530 tons	$14,375,781
	1922	
Imports	316,250 tons	$ 6,567,337
Exports	183,431 tons	13,957,540
Total	499,681 tons	$20,524,877
	1923	
Imports	371,201 tons	$ 7,757,633
Exports	357,374 tons	25,190,743
Total	728,575 tons	$32,948,376
	1924	
Imports	647,847 tons	$ 10,602,377
Exports	215,342 tons	20,646,319
Total	863,189 tons	$31,248,696

There is also a growing intercoastal trade with the principal ports of the Pacific coast. Outbound shipments embrace textiles, oyster shells, canned vegetables, granite, furniture, peanuts, and general merchandise. The predominating inbound commodities are talc, canned milk, beans, dried fruit, lumber, hay and flour.

Charleston's coastwise trade consists principally of cotton and cotton piece goods, lumber, crossties, petroleum products, fertilizer and miscellaneous merchandise. The cotton mills of the southeastern mill district, shipping cotton piece goods to the bleacheries and finishing plants of the eastern and New England sections find this port convenient for transshipment. A "textile special" operated by the Southern railway and made up at Atlanta touches at Spartanburg and other important textile centers. This train, in line with the textile specials serving the East, provides a two-day service to the port of Charleston for through shipments to the distributing points named. Ample safe and dry shipside storage is available.

Charleston's total waterborne traffic for 1924 amounted to 2,082,222 tons valued at $186,166,508.

Steamship Services Out of Charleston

The J. A. Von Dohlen Steamship Co. and the Carolina Co. with seven ships purchased from the United States shipping board and two recently chartered connect Charleston with the leading United Kingdom and continental European ports by regular and frequent sailings. Monthly sailings are also scheduled to the principal ports of the Far East by Isthmian Line vessels. The Clinchfield Coal Co. operates its vessels between Charleston and Cuban ports.

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Recommends a Business Policy

Dalton's Report to the President Strong for Private Ownership—Sale of Surplus Ships—Separation of Board and Fleet Corp.

IN HIS report to the President on the shipping situation, Henry G. Dalton of Cleveland, one of the foremost vessel owners and operators on the Great Lakes, comes out squarely for private ownership and recommends that during the necessary transition period the Fleet corporation operate the ships as a separate agency divorced from the control of the shipping board. He also recommends the prompt sale of surplus tonnage. Mr. Dalton's report in full is as follows:

I believe the nation now realizes the need of an adequate merchant marine, both for the development and protection of our foreign commerce and for the requirements of the national defense, and will support it. A restatement now of the determination to establish and support a merchant marine will be helpful and timely.

We have already made a good start with the ships engaged in coastwise and intercoastal trades, which under the wise laws existing (which should be preserved) restricting that service to American built, owned and operated ships, are giving without other aid a fine service. It is growing both in volume of business and in the number of ships.

Foreign Competition Hard to Meet

The foreign or offshore shipping, however, presents an entirely different situation. It is probably the most competitive and complicated business we have to deal with, requiring, as it does, the knowledge of ships, their operation, traffic problems and market conditions, port facilities and regulations, and the navigation laws of the countries of the world over. For us to compete efficiently and successfully with the nations who have built up the large carrying trade of the world extending over generations—one might fairly say centuries—is no small a task and will require skill, patience, time and money to accomplish it.

Governmental operation can never equal in efficiency or economy private operation. It seems unnecessary to enumerate the many reasons therefore. It is an accepted fact. Therefore we should continue to make every effort to transfer to private ownership as promptly as it can be done the various lines in operation; but this probably cannot be accomplished until the services, one after another, are brought to a profitable operating basis or nearly so and until that time they must be maintained and operated by the Government. But during this period of governmental operation and in order to facilitate the transition from one form to the other, in selecting the shipping men to manage the operated lines care should be taken to secure those who have substantial business prospects and experience in foreign shipping, with the view that they may eventually take over the ownership of the property and business they are managing. The sale of any line should carry with it a guarantee of its continuance for a reasonable number of years. Such provision has been required in recent sales.

I believe the consolidation of some of the services would be advantageous and in the line of economy, and I suggest also that further study be given to that feature as well as to the policy now in force with respect to remunerating managing operators for their service. If some method were devised whereby these managing operators could become interested in the operating profits and losses of their respective fleets, benefit would result therefrom. A considerable expenditure now made for overhead supervision by the shipping board would be unnecessary if such a plan were adopted.

Allow Railroads to Operate Ships

The removal of the restrictions forbidding the railroads to own and operate ships in international trade would also be helpful. It would both extend the transportation facilities of our foreign commerce, and the ships employed, assuming them to be of American register, would be suitable for the needs of the national defense. This and any other avenue of aid in upbuilding the merchant marine should be encouraged.

The tendency of world shipping is now toward the regular operation of the cargo liner on specific routes. It is agreed that the trade routes now being served are covering adequately with suitable ships the present needs of our foreign business. There is some difference of opinion as to the proper number of ships that should be in service on some of these routes. It is also likely that as time goes on there will be need of change in the trade routes to be operated, either by adding new services or discontinuing those which after a fair trial are found either too costly to maintain or to be furnishing unnecessary service; but both of these matters will be satisfactorily dealt with by a good management.

I recommend that the department of commerce, which has close contact with and access to the best governmental knowledge of the needs of commerce and industry as a whole and which is also best fitted to determine the policy, needs and adequacy of these trade routes, should hereafter be consulted concerning any change of the present routes, the addition of new routes or the discontinuance of old ones.

Passenger Liners Needed

Cargo ships of the liner type are now available is sufficient numbers to serve the present needs of our foreign commerce and while this type of ships also will be useful to some extent for the requirements of the national defense and the mails, these latter services will require ships with greater speed and provisions for carrying both passengers and cargo and provision of such ships should receive careful consideration. Co-operation between the departments of the army, navy, commerce and post-office in selecting the types of ships to be used on the different trade routes should be encouraged.

In a recent survey it was found that there are sufficient ships available in the existing fleet to provide for the present and nearby future needs without the necessity of replacement with new tonnage in any material amount, but to take care of changes in and growth of trade, obsolescence of the present fleet, etc., new ships will eventually be required. The adequacy of the present fleet is based upon the assumption that the plan for the dieselization of a sufficient number of ships in the existing fleet to be used in those routes where they will be most serviceable and economical in operation will be carried out. When greater need arises the requirements for the different governmental agencies that are not adequately met by the present fleet can be provided.

I suggest that consideration be

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given to the use of the naval reserve to such extent as may seem reasonable and proper as a means of giving opportunity for the practical development of that branch of the service.

For purposes of efficiency and economy I recommend the complete separation of the Emergency Fleet Corp. from the shipping board and the transfer to the Emergency Fleet Corp. of all ships, with all terminal and other properties and facilities used in connection therewith and now owned by the government, together with all books and accounts, the insurance funds and the research bureau. I do not believe that the methods now in force will ever be successful and to my mind the confusion and dissatisfaction now existing are only to be expected. There appear to be considerable duplication in work and a degree of conflict of authority which together lead to increased costs and lowered efficiency.

Reorganize Fleet Corporation

Reverting to my suggestion of the advantages to be obtained through co-operation among certain departments of the government which are concerned in this enterprise, in order to secure this end, and at the same time to provide the reorganization of the controlling body of the Fleet corporation, I recommend that a board of directors or trustees, consisting of four members of the cabinet, specifically the secretaries of the army, navy, commerce and the postmaster general, be set up. If, in your judgment, there should be representation at large on this board, I suggest that three persons representing the Atlantic, Pacific and Gulf regions be added to it. I further recommend that the President of the United States appoint, in addition to the persons named above, a chief executive of the Fleet corporation who shall also be a member and president of the board, and who, with the approval of the board, will dictate the policies and carry on the business of the Fleet corporation. All of the persons so appointed should serve subject to the pleasure of the President of the United States.

As soon as the ships and other properties connected therewith are turned over to the Fleet corporation, as above constituted, I recommend that a careful survey and inventory of all such ships and properties, together with an audit of the books and accounts, be made, and that the books of the Fleet corporation be adjusted thereto. At the same time it should be determined what number of ships, with suitable reserve, will be required to serve the trade routes it is decided shall be operated, together with the terminal and other properties required in connection therewith. Inasmuch as the mails and the requirements of the national defense need ships of a different character, and of a more costly service than the cargo carrying trade it seems reasonable that the extra costs of these services, both as to ships and operation, should be fairly apportioned among the governmental departments served and included in their respective departmental budgets, and paid over to the Fleet corporation. Arrangements for proper continuance of these allowances, when and as earned, if the lines are sold for private operation, should be made.

Sell Surplus Ships Promptly

The remainder of the property, both ships and otherwise, should, in my opinion, be disposed of as promptly as practicable. While it is desirable to get as much of a return from this part of the government's investment as possible, the early disposal of it will bring the best ultimate results. The ships not needed for service, if kept, will require constant attention and expenditure to prevent deterioration. The world today is overstocked with shipping. Most, if not all, of the ships not needed will later be found unsuited for service, and, therefore, will have little future value. The present time seems opportune for scrapping them. This kind of material is useful now and has good value. Shipyards now idle awaiting a return of shipbuilding can be well employed at this work during their period of idleness. I believe an attempt should be made to dispose of the surplus ships in small numbers from time to time, and spread them out among the various concerns that can scrap them, thus benefiting many industries.

These suggested changes would restore the shipping board's functions to their original status as largely a judicial and regulatory body, and while the regulation of seaborne traffic, by reason of world competition both in shipping and commerce, involves entirely different problems from those of the railways, for instance, and therefore should be very carefully entered into, still I believe some provision for a regulatory body to which American shippers and shipping can have access, would be wise. The continuance of the shipping board would provide for this among the other duties left to it.

In conclusion, I desire to express my great appreciation of the services rendered and the information which has been freely placed at my disposal by all of the departments and agencies concerned in these matters in the preparation of this report.

Harvey D. Goulder Resigns

Harvey D. Goulder of Cleveland, internationally known admiralty lawyer, intimate friend and collaborator of the late William Livingstone, and for many years the legal mainstay of the Lake Carriers' association, has again presented his resignation as general counsel on account of the great amount of exacting work and time involved in carrying on the duties of this important office. He desired to retire from active participation about a year ago but agreed to continue at the special request of Mr. Livingstone and on account of the critical stage of the Chicago drainage canal controversy then up before the Supreme Court and the subject of hearings in congress. Having successfully concluded this phase of the struggle Mr. Goulder felt compelled to again present his resignation which was reluctantly accepted at a meeting of the executive committee held in Cleveland Nov. 24. Harry Coulby, A. F. Harvey and G. A. Tomlinson were appointed by J. S. Ashley, president of the association, to consider the choice of a successor.

Harvey D. Goulder's connection with lake shipping goes back many years. Speaking at the launching of the freighter JOHN STANTON over 20 years ago, he recalled that he could well remember when the JOSEPH S. FAY came out in 1871. That is now 54 years ago and Harvey D. Goulder is still an active and dominant personality in maritime legal practice and is universally honored and respected for his high character and brilliant attainments.

Largest Bulk Freighter

The Midland Shipbuilding Co., Ltd., Ont., is beginning construction on a very large lake vessel. This vessel will be 633 feet in length, 70 feet in beam and 29 feet in molded depth. She will be completed to British corporation class on the arch construction similar to GLENEAGLES with the side tanks extending to spar deck. There will be 25 hatches 12 feet wide, fore and aft, 12 feet between centers; and six compartments in the hold. The carrying capacity of the vessel will be 14,500 tons. The machinery will be a duplicate of that for GLENEAGLES in every way.

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Marine Business Statistics Condensed

Record of Traffic at Principal American Ports for Past Year

New York

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	450	1,920,797	530	2,229,801
September	449	1,960,366	505	2,117,563
August	469	1,889,239	493	1,933,228
July	457	1,813,338	547	2,130,581
June	521	2,177,995	507	2,103,914
May	435	1,820,544	538	2,215,561
April	434	1,796,849	528	2,093,444
March	472	1,899,036	517	2,032,263
February	398	1,680,392	449	1,867,624
January, 1925	387	1,556,853	457	1,869,323

Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)
(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	74	193,534	49	128,906
September	85	211,019	51	113,257
August	84	197,743	65	146,144
July	96	241,244	57	131,400
June	107	260,756	67	165,940
May	87	209,866	63	155,359
April	102	243,546	67	182,335
March	96	238,863	58	163,257
February	93	238,802	55	154,033
January, 1925	77	224,574	57	180,331

Boston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	105	312,455	73	206,347
September	114	328,275	78	196,632
August	136	349,514	104	246,275
July	140	336,982	115	283,558
June	161	368,009	111	213,985
May	118	296,551	93	205,291
April	99	224,275	82	179,010
March	94	295,292	54	159,928
February	85	278,024	46	121,141
January, 1925	78	205,327	34	80,480

Portland, Me.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	17	27,630	20	34,668
September	19	36,082	22	45,258
August	16	37,391	17	36,191
July	23	48,916	23	54,903
June	26	37,668	23	38,892
May	23	42,242	27	47,648
April	24	53,326	30	86,338
March	29	96,263	27	88,408
February	21	72,642	24	83,393
January, 1925	23	65,910	23	65,218

Providence

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	9	35,405	6	21,232
September	7	21,260	7	22,410
August	3	14,019	5	17,041
July	12	34,835	9	27,767
June	8	34,034	7	28,575
May	15	40,589	9	27,016
April	8	26,506	9	34,277
March	11	43,757	7	28,136
February	12	37,995	13	41,669
January, 1925	12	38,395	11	39,717

Portland, Oreg.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	26	98,371	41	144,397
September	28	103,812	43	158,098
August	16	62,202	23	81,712
July	15	56,181	23	79,132
June	19	64,684	26	85,839
May	11	47,728	20	77,847
April	17	68,981	19	80,425
March	15	56,297	26	90,025
February	13	51,236	21	81,438
January, 1925	19	71,880	23	86,518

Baltimore

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	99	302,522	92	293,425
September	93	264,455	109	310,029
August	109	319,469	104	319,035
July	115	345,191	123	350,375
June	118	343,571	121	353,738
May	118	341,793	129	379,956
April	125	363,563	133	394,223
March	115	344,937	112	322,580
February	103	323,817	79	250,369
January, 1925	90	282,299	79	250,369

Norfolk and Newport News

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	26	51,328	91	248,017
September	39	94,940	85	237,623
August	70	183,064	122	348,475
July	61	163,764	131	347,756
June	81	221,318	152	433,953
May	63	159,186	140	376,657
April	32	84,936	112	308,744
March	26	73,427	100	257,061
February	14	40,669	66	186,031
January, 1925	39	95,259	88	262,371

Savannah

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
August, 1925	34	77,027	39	87,455
July	38	97,332	34	91,981
June	26	60,788	27	60,924
May	27	71,946	22	65,595
April	39	106,938	36	59,574
March	..	.....	...	.....
February	40	101,403	37	91,135
January	33	90,730	33	91,062
December	40	109,496	40	113,538
November, 1924	36	109,623	39	115,168

Key West

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	77	91,125	75	90,953
September	76	96,356	73	91,119
August	72	90,106	70	87,924
July	77	94,002	76	91,264
June	87	95,533	85	95,397
May	104	119,502	103	119,729
April	85	103,116	84	102,860
March	88	105,841	87	115,285
February	77	94,214	77	96,890
January, 1925	75	100,350	71	96,815

Mobile

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	88	258,529	84	161,648
September	80	149,289	76	171,432
August	83	172,872	75	152,613
July	89	180,488	80	160,739
June	86	161,215	79	156,160
May	95	193,841	89	172,419
April	92	190,808	91	180,993
March	97	215,386	91	197,950
February	93	192,722	82	184,575
January, 1925	84	192,722	82	184,575

Seattle

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	52	203,951	49	207,153
September	42	173,157	43	183,917
August	31	135,105	35	144,874
July	32	137,319	28	130,875
June	34	143,655	41	174,668
May	28	132,043	39	138,570
April	41	156,761	42	173,116
March	39	168,567	39	157,419
February	31	124,870	30	129,648
January, 1925	39	169,458	36	145,663

New Orleans

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	252	729,058	276	789,419
September	248	655,367	248	680,446
August	257	675,405	253	664,064
July	265	673,711	262	648,474
June	268	679,277	249	609,807
May	256	666,503	276	724,621
April	266	692,569	283	727,156
March	294	774,343	280	738,445
February	178	435,185	170	433,678
January, 1925	253	731,964	264	738,164

Houston

(Cargo tonnage)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1924	99	39,568	102	154,455
November	101	36,016	95	233,436
October	..	34,945	...	192,986
September	94	50,710	90	171,229
August	82	66,665	84	114,966
July	59	77,062	57	288,417
June	65	74,794	72	336,312
May	72	64,937	71	362,359
April	78	76,466	73	337,757
March, 1924	88	113,064	87	411,715

Galveston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	43	98,168	96	302,581
September	33	95,954	72	225,194
August,	28	80,524	41	133,058
July	86	100,359	52	141,316
June	47	120,423	57	177,647
May	46	114,702	53	151,098
April	47	107,223	60	171,863
March	55	147,303	75	228,187
February	56	140,065	90	277,751
January, 1925	67	188,781	110	337,882

Los Angeles

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	348	385,660	271	273,939
September	115	284,493	205	259,437
August	161	344,646	160	295,220
July	133	326,692	119	285,624
June	162	382,186	102	278,294
May	168	363,843	138	298,066
April	153	316,134	137	262,631
March	131	359,572	113	281,149
February	162	284,988	127	237,474
January, 1925	127	312,248	115	259,345

San Francisco

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	138	517,798	136	511,844
September	135	487,872	144	535,301
August	154	579,197	154	549,844
July	138	517,798	136	511,844
June	135	514,900	96	464,624
May	163	567,001	145	554,483
April	134	472,879	157	517,654
March	129	542,912	139	669,367
February	117	443,749	124	454,699
January, 1925	119	446,477	126	454,303

Port Arthur

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
October, 1925	30	86,652	32	95,695
September	26	101,387	31	88,654
August	22	66,176	23	68,827
July	27	59,956	34	100,395
June	26	67,251	30	83,972
May	28	105,707	42	122,871
April	33	100,595	43	116,485
March	38	95,977	45	110,248
February	32	95,537	19	44,376
January, 1925	34	100,449	33	85,261

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Why Ships Go Ashore

BY CAPT. JOHN F. MILLIKEN

THERE are a great many reasons why ships go ashore. I was with a seafarer once who always used to say "keep the ship where the water is deep and she wont go ashore." Some ships run ashore through carelessness, others through lack of knowledge, but the great majority of ships go ashore due to overcast and foggy weather, when it is impossible for the master to check up on his position accurately, and when it is impossible for him to take bearings to determine his compass error.

The old fashioned lead is still used to great advantage and is supposed to be one of the principal instruments in navigation. The three most important things in navigation are the lookout, the log and the lead. Many a man has gone ashore, however, who has conscientiously taken soundings every thirty minutes. This is due to the fact that the old fashioned lead line tells you how much water you had in the past, and if a man takes a sounding while a ship is under way he is liable to strike bottom before he can really determine the amount of water under the ship at the time that he took the sounding.

I think the new fathometer which has been invented and developed into an efficient practical instrument by the Submarine Signal Co. together with the Sperry gyroscopic compass, are two of the finest instruments we have ever had to assist in the safe navigation of ships.

The ocean tides and currents which are not constant factors make it difficult for a navigator to determine by dead reckoning just exactly what his location is and it is therefore of the utmost importance that he be given every aid that our age of mechanical science can offer, to safeguard the lives of the men on board and the property of the vessel owner.

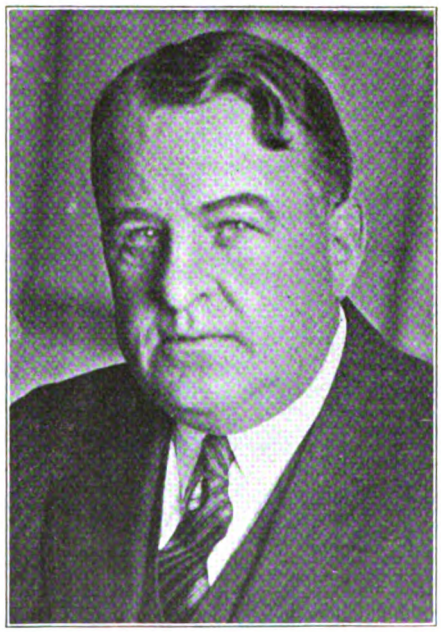
JOHN F. MILLIKEN

Captain Milliken is an experienced navigator, and is the secretary-treasurer of the Neptune association, 82 Broad street, New York.

Elmer E. Crowley Heads Emergency Fleet

ELMER E. CROWLEY, chosen by the shipping board to become head of the Emergency Fleet Corp. after the board had demanded and obtained the resignation of Admiral Leigh C. Palmer, is a native of Massachusetts and has had extensive experience as a practical shipping man. He has filled several posts under the government administration of the merchant fleet previously.

Captain Crowley began going to sea when a boy of 15, later becoming master of sailing vessels, one of them being the THOMAS W. LAWSON, the only seven-masted sailing vessel ever built in this country. After nine years' service as master of sailing vessels he became master of steam vessels, in which capacity he worked for some years. Having been assigned by the Coastwise Transportation Co. to superintend the building of its vessels, Captain Crowley was put in charge of fitting out the company's fleet in New York when the Coastwise Transportation Co. ships were taken over by the government in 1917. In this capacity he had charge of all repairs and personnel, and was elected assistant general manager in charge of the New York office in 1918, taking charge of the operations of the fleet. Afterwards he was elected vice president of the Coastwise company. Later he was employed by the receivers to survey and inventory the United States Mail ships when they were turned back to the shipping board. In April, 1923, Mr. Crowley was appointed by the shipping board to take charge of one of the units surveying the laid-up fleet, and was assigned to Fleets 1 and 2 at Staten Island. In September of that year he became president and general manager of the East Baltic line in New York. In July, last year, he was appointed special assistant to the president of the Emergency Fleet Corp., looking into the operations of the United States shipping board at Washington. He continued in that position until Sept. 15, 1924, when he was appointed operating manager for the shipping board in the New York district, and he held that position until March 1, this year, when he resigned to take up his duties as operating manager for the American Export line, in New York.



CAPT. ELMER E. CROWLEY
President Emergency Fleet Corp.

While not criticizing Mr. Crowley's fitness for the place, President Coolidge let it be known, however, that he did not approve of Mr. Crowley's acceptance without first ascertaining whether such acceptance would be agreeable to the President. The President had expected that the board at least would do him the courtesy of deferring action with respect to Mr. Palmer until H. G. Dalton, of Pickands, Mather & Co., Cleveland, had completed his investigation of shipping board affairs. In the view of President Coolidge, the proper procedure for Mr. Crowley would have been to have consulted with the President before accepting the appointment. Mr. Crowley will act under the seven members of the shipping board, but it has been announced by the board that he will be given the necessary independence of action requisite for the operation of the government fleet.

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Chicago Company Enters Diesel Engine Field

The Chicago Pneumatic Tool Co. has affected arrangements with Motoren Werke, Mannheim, Germany whereby they have acquired the exclusive rights to manufacture and sell the Benz solid injection Diesel engine in the United States and Canada. The Benz Diesel engine is of vertical, multiple cylinder type, built on the four stroke principle.

Many advantages are claimed for this engine, among them a very simple and clear design, which eliminates the use of a high pressure compressor, an injection cylinder with high pressure pipe line and injection valve. There is no ignition device, which eliminates the use of rather delicate apparatus. Due to automatic regulation and its simple operation, it can be operated by men who have had a very limited engine experience, which tends to lower the cost of operation.

The Benz engine will operate on all kinds of petroleum and its derivetives such as gas, oil, kerosene, crude oil, parafine oil and liginite tar. Regulation is effected by a precision governor which acts on an admission valve of the fuel pump, the quantity of fuel being delivered strictly in proportion to the load of the engine. The fuel consumption is said to be exceptionally low.

Car Ferry Ordered

The Manitowoc Shipbuilding Corp., Manitowoc, Wis., has been awarded the contract for the complete construction of a new steel car ferry by the Wabash railroad. The ferry is to be ready for the opening of navigation in 1926. It will be 370 feet long with a beam of 67 feet and will accommodate 30 freight cars of the largest type.

Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated

Quotations Corrected to Nov. 18, 1925 on Future Loadings

NOTE: FREIGHT RATES STEADY WITH BUSINESS FAIR

New York to	Grain	Provisions	Cotton (H. D.)	Flour	General cargo cu. ft.	General cargo 100 lbs.	††Finished steel	REMARKS Freight Offered
Liverpool	1s 9d	$0.50	$0.30 to 0.45	0.20	$0.40	$0.75	$7.00T	Active
London	3s 0d‡	0.50	....	0.20	0.40	0.75	7.00T	Active
Oslo	$0.20	0.45	0.50	0.27	0.42½	0.85	7.00T	Fair
Copenhagen	0.20	0.45	0.40	0.26	0.42½	0.85	7.00T	Fair
Hamburg	0.14	0.35	0.35	0.22	0.37½	0.75	8.00T	Active
Bremen	0.16 to 0.20	0.35	0.40	0.22	0.37½	0.75	8.00T	Good
Rotterdam and Amsterdam	0.15	0.32½	0.45	0.22	0.35	0.70	7.50T	Slow
Antwerp	0.14	0.32½	0.35	0.20	0.35	0.70	7.50T	Very good
Havre	0.16	0.50	0.35	0.27½	0.40	0.75	8.00T	Poor
Bordeaux	0.16	0.50	0.35	0.27½	0.40	0.75	8.00T	Poor
Barcelona	0.20	12.00T	0.30	10.00	—12.00T—		10.00T	Good
Lisbon	....	0.65	0.40	7.00T	—20.00T—		7.00T	Slow
Marseilles	0.17	0.55	0.30	6.00	—20.00T—		5.00T	Slow
Genoa	0.16	12.50	0.40	7.00	—20.00T—		10.00T	Fair
Naples	0.16	12.50	0.40	7.00	—20.00T—		10.00T	Fair
Constantinople	0.27	17.00T	0.75	0.32½	—20.00T—		9.00T	Very good
Alexandria	....	17.00T	0.90	0.32½	—20.00T—		9.00T	Very good
Algiers	....	0.75	0.50	0.40	—20.00T—		7.00T	Slow
Dakar	....	15.00	....	14.00T	—21.00T—		10.50T	Good
Capetown	9.00T	18.00	....	12.00T	—18.00T—		18.00T	Very good
Buenos Aires	....	18.00 to 20.00T	....	....	18.00 to 20.00T†		8.00 to 8.80T	Fair
**Rio de Janeiro	....	21.50 to 23.50T	....	11.25 to 12.50T	19.00 to 21.00T†		7.00 to 7.70T†	Fair
Pernambuco	....	22.00T	....	9.50T	—22.00T—†		9.70T†	Fair
Havana	0.22½ to 0.27½*	0.42½*	....	0.22½*	0.54*	1.08*	10.20*	Very good
Vera Cruz	0.25	0.40	0.45	0.25	0.52½	1.05	0.30 to 0.35	Very good
Valparaiso	....	1.07	....	0.70	0.45	0.80	10.00T	Good
San Francisco	....	0.40 to 0.70	....	0.50 to 1.10	....	2.50	0.55 to 1.00	Very good
Sydney	....	18.00T	2.50	1.25	18.00-24.00T		9.00-12.00T	Fair
Calcutta	....	16.00T	0.60	12.00T	—16.00T—		10.00T	Fair

T—Ton. ‡Per quarter of 480 lbs. †Landed. ††Heavy products limited in length. *Extra charge for wharfage. **Plus $1.00 surcharge on all rates to Rio de Janeiro on account of congestion.

From North Pacific Ports to	Lumber Per m. t.
San Francisco	$5.00
South California	5.00 to
Hawaiian Islands	10.00 to 12.00
New Zealand	17.00 to 20.00
Sydney	12.00 to 13.00
Melbourne-Adelaide	12.50 to 13.50
Oriental Ports	11.00 to 12.00
Oriental Ports (logs)	11.50 to 13.00
Peru-Chile	11.00 to 13.00
South Africa	17.00 to 18.00
Cuba	14.00 to 16.00
United Kingdom	75s to 90s
United Kingdom (ties)	70s to 80s
Baltimore-Boston range	$15.00 to 16.00
Florida Range	18 to 20
Buenos Aires	14.00
Flour and Wheat	
U. K. and Continent (gross ton)	30s to 35s
Oriental Ports (net tons)	$4.50 to 5.00

Principal Rates To and From United Kingdom

	s	d
Grain, River Plate to United Kingdom	18	6
Coal, South Wales to Near East	9	9
Coal, United Kingdom to Buenos Aires	15	6
Manganese Ore, Poti to Philadelphia	$3.80	
Pig iron, United Kingdom to New York or Philadelphia	8	0
Iron ore, Bilbao to Cardiff	6	3
Iron ore, Huelva to Phila. or Balto	11	0

NOTE: Lighterage rates on fuel in New York reduced from 6½c to 5½c per barrel.

Bunker Prices

At New York

	Coal alongside per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
Mar. 17, 1925	5.00@6.25	1.80½	6.00@6.50c
April 20	5.00@6.00	1.80½	5.50
May 18	5.00@6.00	1.75	5.48
June 4	5.00@6.00	1.80½	5.50
July 20	4.50@6.00	1.75	5.50
Aug. 17	5.00@6.00	1.71½	5.50
Sept. 19	5.50@6.00	1.71½	5.00
Oct. 17	5.00@6.00	1.70½	5.00
Nov. 18, 1925	5.50@5.60	1.70½	5.00

At Philadelphia

	Coal trim. in bunk per ton	Fuel oil alongside per barrel	Diesel oil alongside per gallon
Mar. 17, 1925	5.05@5.82	2.06½@2.31	6.10@2.31
April 20	5.00@6.00	1.95@2.06½	5.65½
May 18	5.00@5.80	1.85@1.91½	5.41@5.64
June 4	4.90@5.50	1.86½	5.50
July 20	4.90@5.50	1.69@1.81½	5.15@5.43
Aug. 17	5.00@5.80	1.56@1.71½	5.15@5.29
Sept. 19	5.25@5.50	1.55@1.61½	5.00
Oct. 17	5.25@5.50	1.71½@1.74½	5.15@5.65
Nov. 18, 1925	5.40@5.65	1.71½@1.74½	5.15@5.25

Other Ports

Boston, coal, per ton...$6.78
Boston, oil, f. a. s., per barrel... 1.76
Hampton Roads, coal, per ton, f.o.b., piers..5.25 to 5.40 f.o.b.
Oct. 12 — Cardiff, coal, per ton...10s 6d
London, coal, per ton..25s 0d
Antwerp, coal, per ton.23s 0d
Antwerp, Fuel oil, per ton.77s 6d
Antwerp, Diesel oil, per ton...97s 6d
British ports, Fuel oil...72s 6d
British ports, Diesel oil..87s 6d

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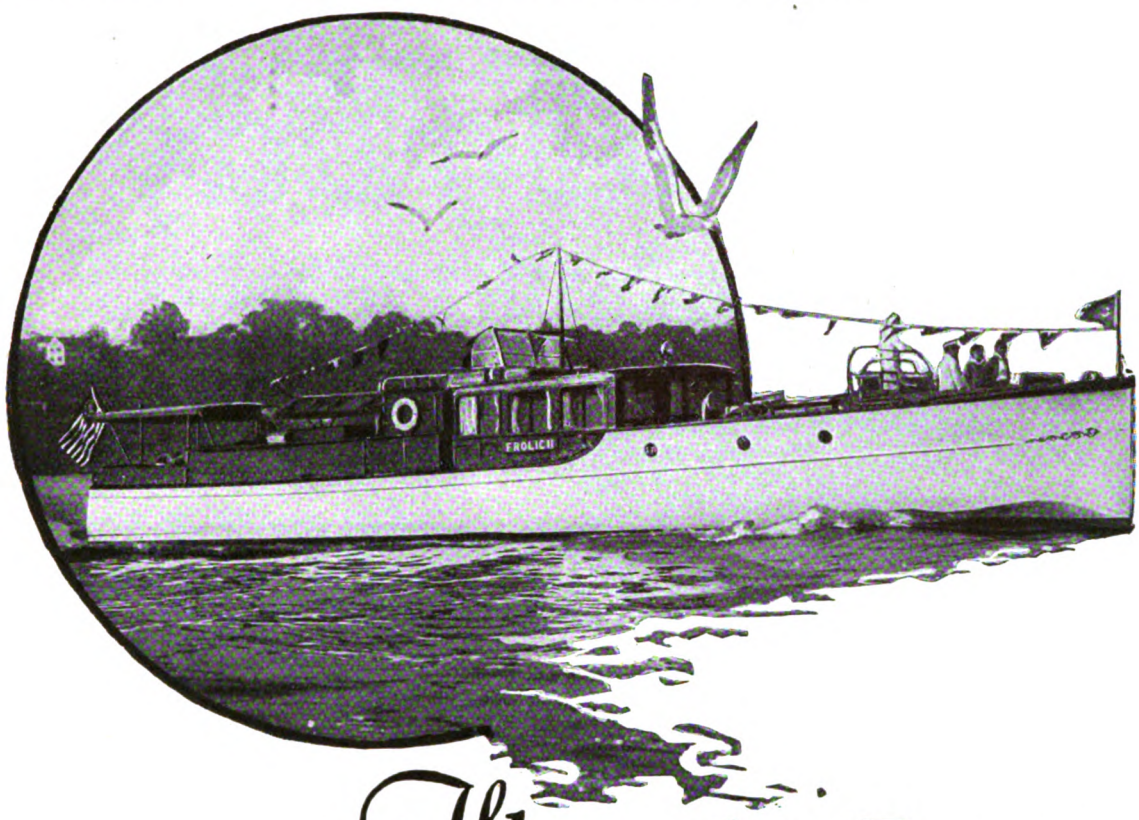

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—she represented the last word in designing and equipment.

This trim, speedy day cruiser is the Frolic, 70 ft. long, with a beam of 13 ft., a draft of 4 ft. 6 in. and is equipped with two 300 h. p. Winton motors. She is owned by Walter P. Chrysler of the Chrysler Corporation.

Nothing was spared to bring to the Frolic the utmost in efficiency and comfort, hence when the question of stern bearings came up, the designers, John H. Wells, Inc., promptly wrote Goodrich "Cutless Bearings" into the specifications. Result—smoother, quieter running, longer bearing life and a material reduction in dry-docking expenses.

The Goodrich Cutless bearing is lubricated only by water.

Shaft scoring is practically eliminated and vibration absorbed. It will outwear any other type of bearing.

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Goodrich
Cutless Bearings

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1100 No. Madison Ave., Rome, N. Y.
Ellis Channel System of Steel Hull Construction, 30 Church St., New York City.

BATTERIES

Electric Storage Battery Co.,
Philadelphia, Pa.

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Goodrich, B. F., Rubber Co., Akron, Ohio.

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Foot of W. 54th St., Cleveland, O.

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Diehl Mfg. Co., Elizabeth, N. J.
Sturtevant, B. F., Co.,
Hyde Park, Boston, Mass.

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Detroit, Mich.

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Babcock & Wilcox Co.,
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Bethlehem, Pa.
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Great Lakes Engineering Works,
River Rouge, Mich.
Oldman-Magee Boiler Works,
36-40 Illinois St., Buffalo, N. Y.
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Todd Shipyards Corp.,
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Toledo Shipbuilding Co., Toledo, O.

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1204 Prudential Bldg., Buffalo, N. Y.
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6 No. Michigan Ave., Chicago, Ill.

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Whiting, John L.—J. J. Adams Co.,
690 Harrison Ave., Boston, Mass.

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Durable Wire Rope Co.,
93 Pearl St., Boston, Mass.
National Malleable & Steel Castings Co.,
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Stratford, Geo., Oakum Co.,
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River Rouge, Mich.
National Malleable & Steel Castings Co.,
10600 Quincy Ave., Cleveland, O.
New London Ship & Engine Co.,
11 Pine St., New York City.
Standard Motor Construction Co.,
172 Whiton St., Jersey City, N. J.

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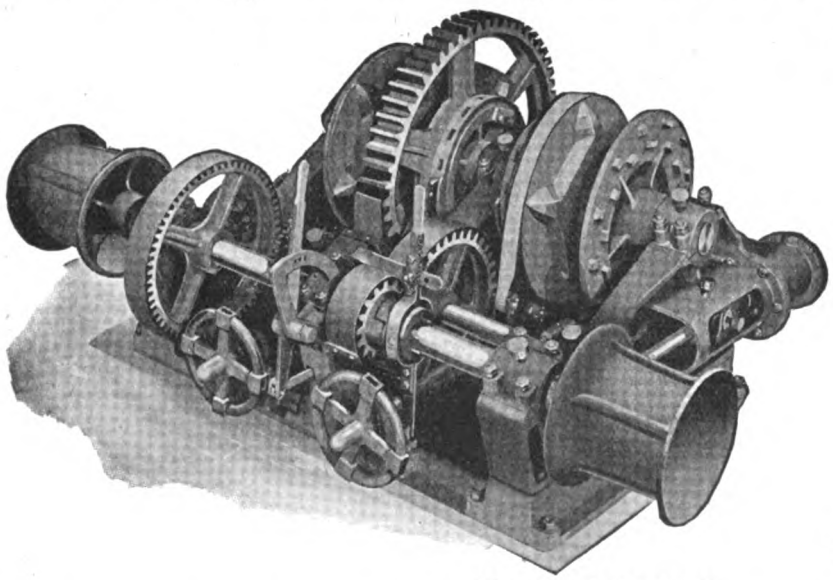

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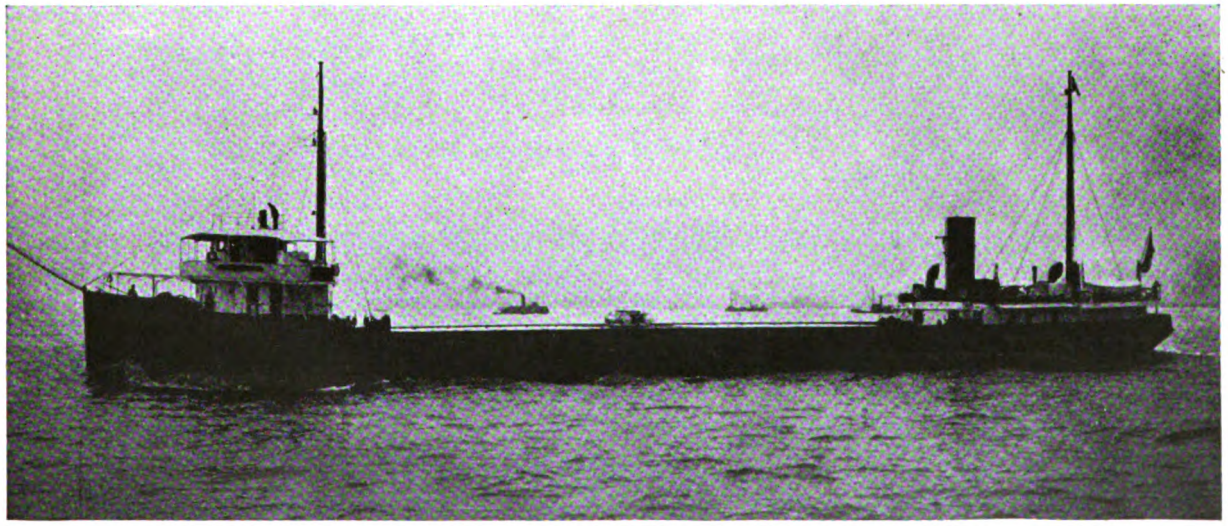

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Continental Iron Works, The,
West and Calyer Sts., Brooklyn, N. Y.

FUSES (Electrical)
General Electric Co., Schenectady, N. Y.

GAGE (Cocks)
Jerguson Gage & Valve Co.,
Winter Hill, Somerville, Mass.

GAGES (Reflex Water)
Jerguson Gage & Valve Co.,
Winter Hill, Somerville, Mass.

GALLEY RANGES
Stamford Foundry Co., Stamford, Conn.

GAS (Acetylene Dissolved)
Prest-O-Lite Co.,
30 E. 42nd St., New York City.

GAS (Nitrogen and Oxygen)
Linde Air Products Co.,
30 E. 42nd St., New York City.

GAS (Welding and Cutting)
Prest-O-Lite Co.,
30 E. 42nd St., New York City.

GEARS (Marine Equipment)
General Electric Co., Schenectady, N. Y.
Westinghouse Electric & Mfg. Co.,
East Pittsburgh, Pa.

GENERATORS
Engberg's Electric & Mechanical Works,
22 Vine St., St. Joseph, Mich.
General Electric Co., Schenectady, N. Y.
Westinghouse Electric & Mfg. Co.,
East Pittsburgh, Pa.

GENERATING SETS (Direct Connected)
Engberg's Electric & Mechanical Works,
22 Vine St., St. Joseph, Mich.
General Electric Co., Schenectady, N. Y.
Sturtevant, B. F., Co.,
Hyde Park, Boston, Mass.

GREASE
Tidewater Oil Sales Corp.,
11 Broadway, New York City.
Vacuum Oil Co.,
61 Broadway, New York City.

GREASE (Launching)
Tidewater Oil Sales Corp.,
11 Broadway, New York City.
Vacuum Oil Co.,
61 Broadway, New York City.

GYRO-PILOT (Automatic Steering)
Sperry Gyroscope Co.,
Manhattan Bridge Plaza, Brooklyn, N. Y.

HARDWARE (Marine) — See MARINE HARDWARE

HATCH FASTENERS
Mullholland Hatch-Fastener Co.,
Marion Bldg., Cleveland, O.

HAWSERS (Manila)
Columbian Rope Co., Auburn, N. Y.

HEATERS AND PURIFIERS (Feed Water)
Davis Engineering Co.,
1064 E. Grand St., Elizabeth, N. J.
Griscom-Russell Co.,
2121 West St. Bldg., New York City.
Worthington Pump & Machinery Corp.,
115 Broadway, New York City.

HEATING EQUIPMENT
Sturtevant, B. F., Co.,
Hyde Park, Boston, Mass.
Westinghouse Electric & Mfg. Co.,
East Pittsburgh, Pa.

HEATING STOVES
Stamford Foundry Co., Stamford, Conn.

HOISTING ENGINES AND EQUIPMENT
Lidgerwood Mfg. Co.,
96 Liberty St., New York City.
Superior Iron Works Co., Superior, Wis.

HOISTS (Air)
American Shipbuilding Co.,
Foot of W. 54th St., Cleveland, O.

HOISTS (Electric, Pneumatic, Hand)
Superior Iron Works Co., Superior, Wis.

HOSE
Goodrich, B. F., Rubber Co., Akron, O.

HULLS (Steel)
Channel Steel Barge Co.,
1100 No. Madison Ave., Rome, N. Y.
Ellis Channel System of Steel Hull Construction, 30 Church St., New York City.

ICE MACHINES — See REFRIGERATING MACHINERY

INDICATORS (Helm Angle)
Sperry Gyroscope Co.,
Manhattan Bridge Plaza, Brooklyn, N. Y.

INSURANCE (Marine)
Boland & Cornelius,
1204 Prudential Bldg., Buffalo, N. Y.
Osborn & Lange, Inc.,
Insurance Exchange, 175 W. Jackson Blvd., Chicago, Ill.
Prindiville, John, & Sons,
208 S. La Salle St., Chicago, Ill.

INTERIOR FITTINGS (Marine)
Tiebout, W. & J.,
118 Chambers St., New York City.

JOINER EQUIPMENT
Tiebout, W. & J.,
118 Chambers St., New York City.

LAMPS (Mazda and Arc)
General Electric Co., Schenectady, N. Y.

LATCHES (Ship)
Tiebout, W. & J.,
118 Chambers St., New York City.

LIFE BOATS, RAFTS, SUITS, PRESERVERS AND LIFE SAVING EQUIPMENT
Welin Davit & Boat Corp.,
305 Vernon Ave., Long Island City, N. Y.

LIGHTING EQUIPMENT
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East Pittsburgh, Pa.

LIGHTS (Electric)
General Electric Co., Schenectady, N. Y.

LOCKS (Ship)
Tiebout, W. & J.,
118 Chambers St., New York City.

LOGS (Patent)
Walker, Thomas, & Son, Ltd.,
58 Oxford St., Birmingham, England.

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Vacuum Oil Co.,
61 Broadway, New York City.

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American Shipbuilding Co.,
Foot of W. 54th St., Cleveland, O.
Bethlehem Shipbuilding Corp., Ltd.,
Bethlehem, Pa.
Chicago Shipbuilding Co., So. Chicago, Ill.
Great Lakes Engineering Works,
River Rouge, Mich.
Manitowoc Ship Building Corp.,
Manitowoc, Wis.
Toledo Ship Building Co., Toledo, O.

MACHINISTS
American Shipbuilding Co.,
Foot of W. 54th St., Cleveland, O.
Federal Shipbuilding & Dry Dock Co.,
26 Beaver St., New York City.
Milwaukee Dry Dock Co., Milwaukee, Wis.
New London Ship & Engine Co.,
11 Pine St., New York City.
Todd Shipyards Corp.,
25 Broadway, New York City.

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MARINE DECKING — See DECKING

MARINE GLUE
Carpenter, Geo. B., & Co.,
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MARINE HARDWARE
Marine Decking & Supply Co.,
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Penna. Flooring & Woodoleum Mfg. Co.,
34 S. 17th St., Philadelphia, Pa.
Tiebout, W. & J.,
118 Chambers St., New York City.

MARINE METAL
Post, E. L., & Co., Inc.,
50 Cliff St., New York City.

MARINE RAILWAY BUILDERS
Crandall Engineering Co.,
102 Border St., Boston, Mass.

MARINE RAILWAYS
Cramp, Wm., & Sons Ship & Engine Bldg. Co., Philadelphia, Pa.

MARINE SUPPLIES
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Tiebout, W. & J.,
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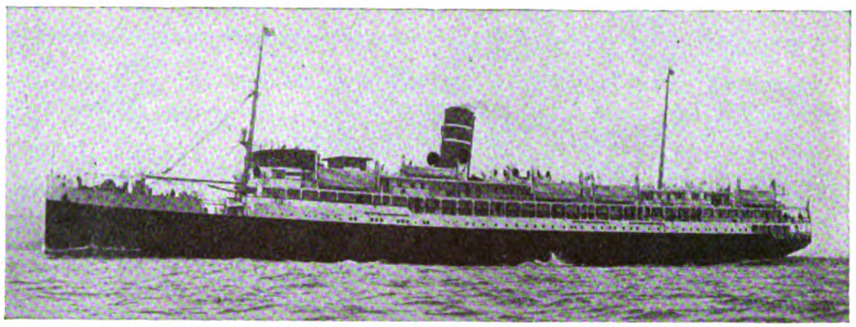

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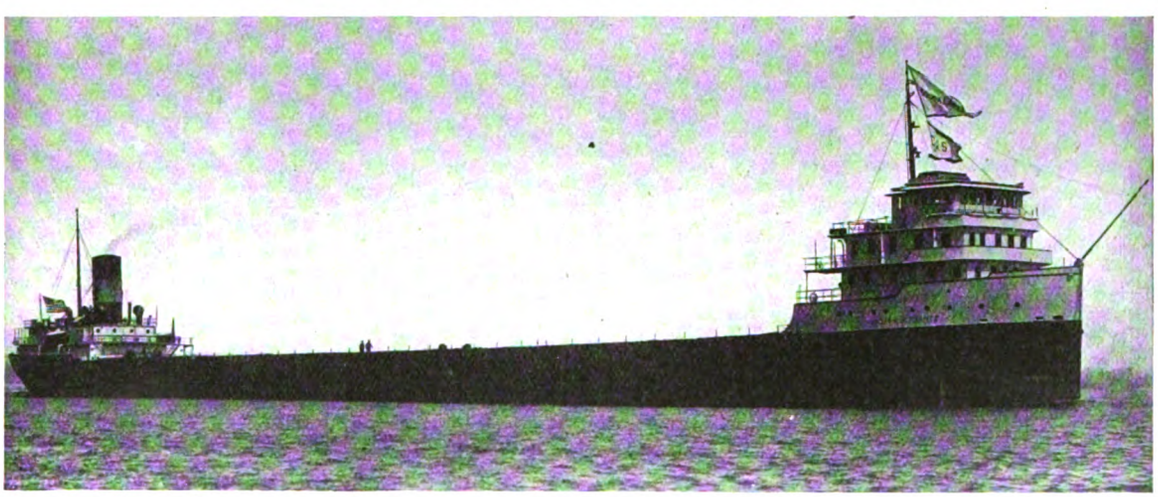

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Engberg's Electric & Mechanical Works, 22 Vine St., St. Joseph, Mich.
General Electric Co., Schenectady, N. Y.

MOTORS (Winch)

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Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

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White, Kelvin & Wilfried O., Co., 112 State St., Boston, Mass.

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PACKING (Tarred and Untarred Jute)

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United American Lines, Inc., 39 Broadway, New York City

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Stratford, George, Oakum Co., Jersey City, N. J.

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PLATES (Floor)

American Pressed Steel Co., Commercial Trust Bldg., Philadelphia, Pa.

PLATES (Ship)

Lukens Steel Co., Coatesville,, Pa.

PLATES (Tank)

Lukens Steel Co., Coatesville, Pa.

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Stratford, George, Oakum Co., Jersey City, N. J.

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Port of Newark, Newark, N. J.

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Great Lakes Engineering Works, River Rouge, Mich.
Milwaukee Dry Dock Co., Milwaukee, Wis.
Sheriffs Mfg. Co., Milwaukee, Wis.
Toledo Ship Building Co., Toledo, O.
Trout, H. G. Co., 220 Ohio St., Buffalo, N. Y.

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Columbian Bronze Corp., Freeport, L. I., N. Y.
Cramp, Wm., & Sons Ship & Engine Bldg. Co., Philadelphia, Pa.
Hyde Windlass Co., Bath, Me.

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Great Lakes Engineering Works, River Rouge, Mich.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PUMPS (Ballast)

Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PUMPS (Bilge)

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Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PUMPS (Boiler Feed)

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Superheater Co., 17 E. 42nd St., New York City.
Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PUMPS (Centrifugal)

Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PUMPS (Direct Acting)

Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PUMPS (Power)

Dean Brothers Co., 823 W. Tenth St., Indianapolis, Ind.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PUMPS (Steam-Holly Type)

Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PUMPS (Steam)

Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Warren Steam Pump Co., Warren, Mass.

PUMPS (Vacuum)

Dean Brothers Co., 323 W. Tenth St., Indianapolis, Ind.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

PURIFICATION SYSTEMS—See WATER PURIFICATION SYSTEMS

PYROMETERS

Superheater Co., 17 E. 42nd St., New York City.

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RAILWAY DRY DOCKS

Crandall Engineering Co., 102 Border St., Boston, Mass

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Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.
Chicago Shipbuilding Co., So. Chicago, Ill.
Federal Shipbuilding & Dry Dock Co., 26 Beaver St., New York City.
Great Lakes Engineering Works, River Rouge, Mich.
Manitowoc Ship Building Corp., Manitowoc, Wis.
Smith, Leathem D., Dock Co., Sturgeon Bay, Wis.
Staten Island Shipbuilding Co., 1 Broadway, New York City.
Sun Shipbuilding & Dry Dock Co., Chester, Pa.
Todd Shipyards Corp., 25 Broadway, New York City.
Toledo Shipbuilding Co., Toledo, O.

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Sperry Gyroscope Co., Manhattan Bridge Plaza, Brooklyn, N. Y.

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RIVETS (Boiler) — See BOILER RIVETS

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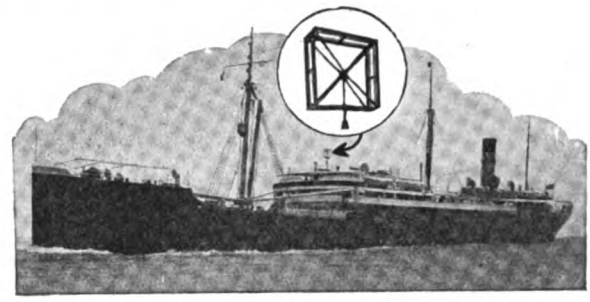

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Sperry Gyroscope Co.,
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Bldg. Co., Philadelphia, Pa.
Federal Shipbuilding & Dry Dock Co.,
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Great Lakes Engineering Works,
River Rouge, Mich.
Manitowoc Ship Building Corp.,
Manitowoc, Wis.
Smith, Leathem D., Dock Co.,
Sturgeon Bay, Wis.
Staten Island Shipbuilding Co.,
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Sun Shipbuilding & Dry Dock Co.,
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Todd Shipyards Corp.,
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STEERING GEARS

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Bethlehem Shipbuilding Corp., Ltd.,
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Westinghouse Electric & Mfg. Co.,
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Bldg. Co., Philadelphia, Pa.
Federal Shipbuilding & Dry Dock Co.,
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Sturtevant, B. F., Co.,
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TWINE AND ROPE

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VALVES AND FITTINGS

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Port of Newark, Newark, N. J.

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Jerguson Gage & Valve Co.,
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Griscom-Russell Co.,
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Westinghouse Electric & Mfg. Co.,
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Prest-O-Lite Co.,
30 E. 42nd St., New York City.

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Hyde Windlass Co., Bath, Me.
Lidgerwood Mfg. Co.,
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Welin Davit & Boat Corp.,
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Bethlehem Shipbuilding Corp., Ltd.,
Bethlehem, Pa.
Carpenter, George B., & Co.,
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Dake Engine Co., Grand Haven, Mich.
Hyde Windlass Co., Bath, Me.
Superior Iron Works Co., Superior, Wis.

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Kearfott Engineering Co.,
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Durable Wire Rope Co.,
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Federal Telegraph Co.,
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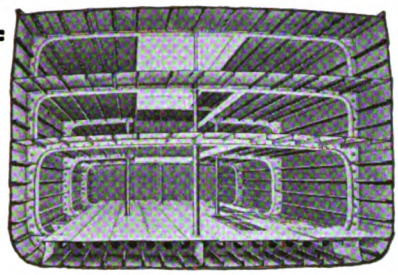

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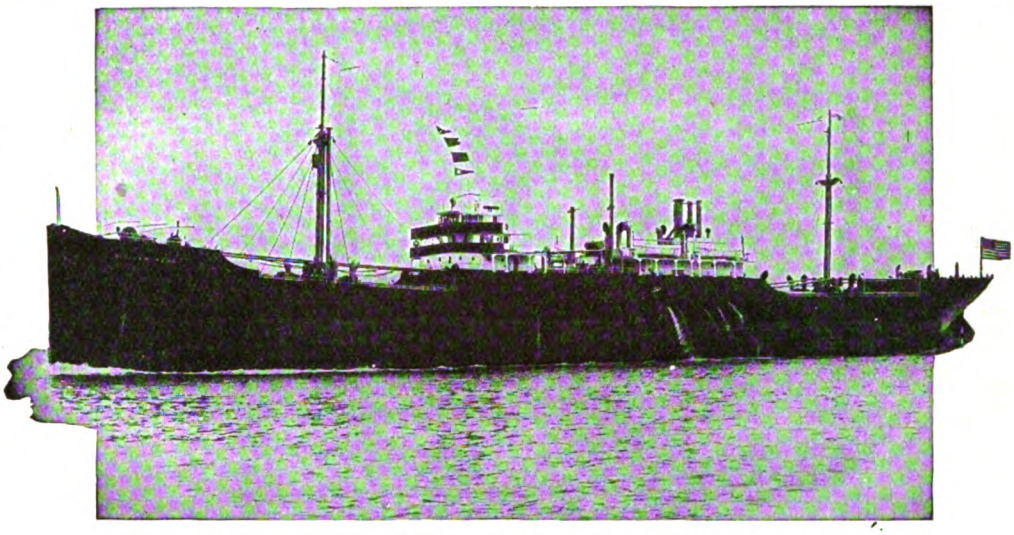

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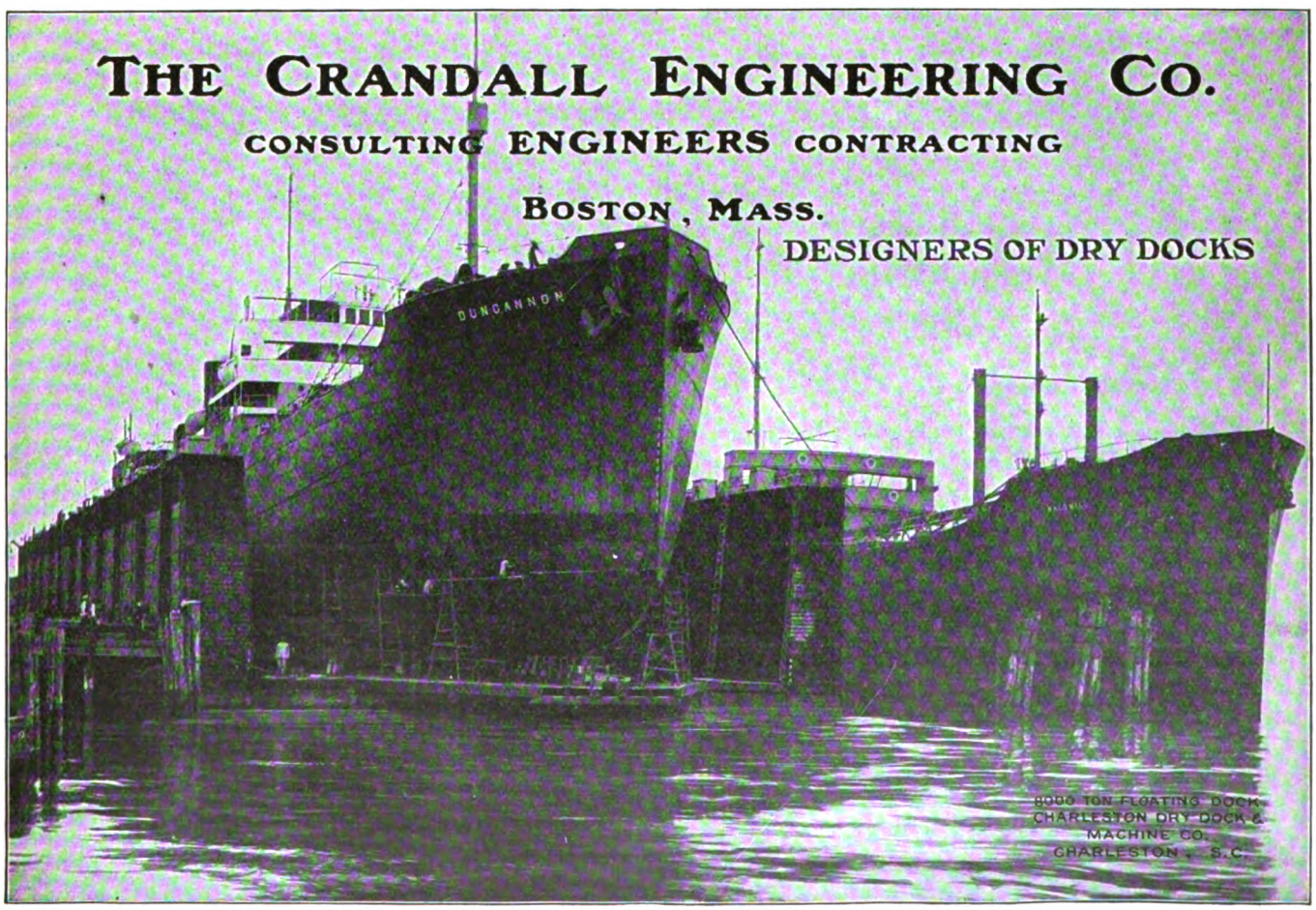

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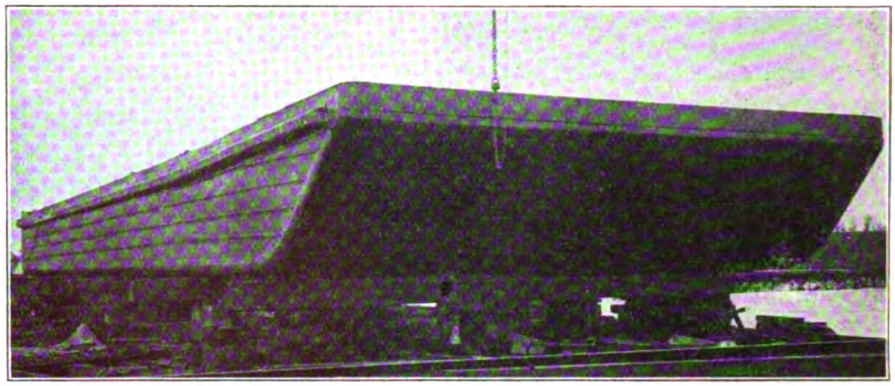
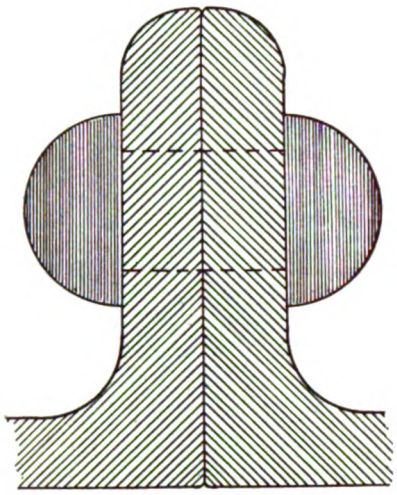
All Steel Channel Deck Lighter for U. S. Engineers, completed at Rome, N. Y., June, 1925. Note Sheer at ends.





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No Special Rolled Channels required and all Caulking is eliminated.

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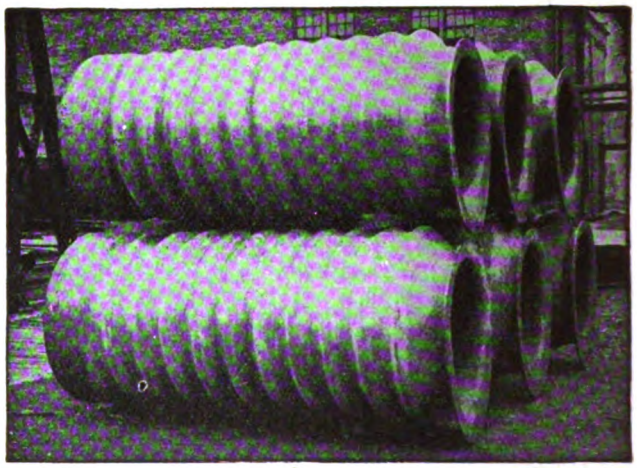

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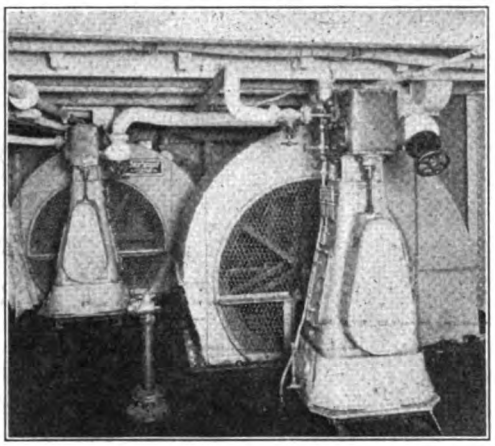
Sturtevant Marine Equipment



S. S. Leviathan, largest ship afloat, is equipped with Sturtevant Apparatus. These units are satisfactorily fulfilling all heating and ventilating and forced draft requirements. The above illustration shows two of the 32 Sturtevant Ventilating Fans. Eight Sturtevant Forced Draft Fans each direct connected to a VS-7 Engine supply draft to the boilers of this great ship.

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Sturtevant Equipment is built for long and dependable service. If you are contemplating building or conversion, let the Sturtevant Marine Apparatus Department help you in the selection of proper apparatus for your ships.

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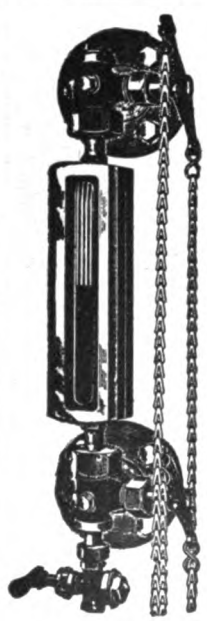

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ADVANTAGES:

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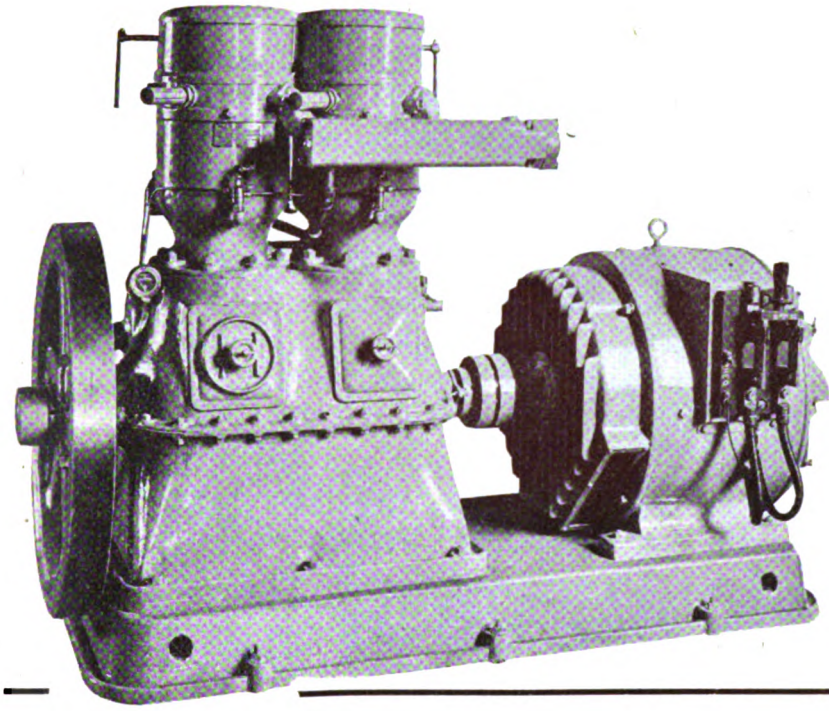

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DIEHL Manufacturing Company

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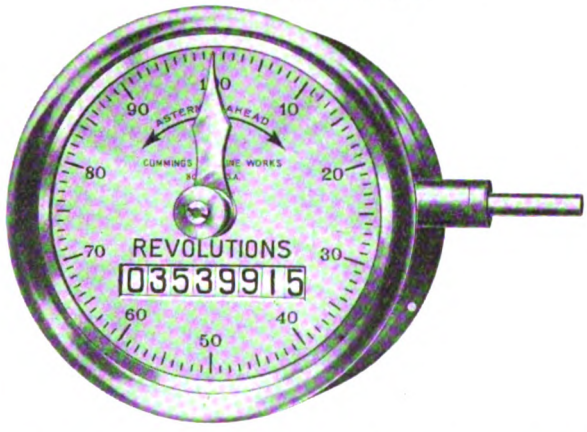

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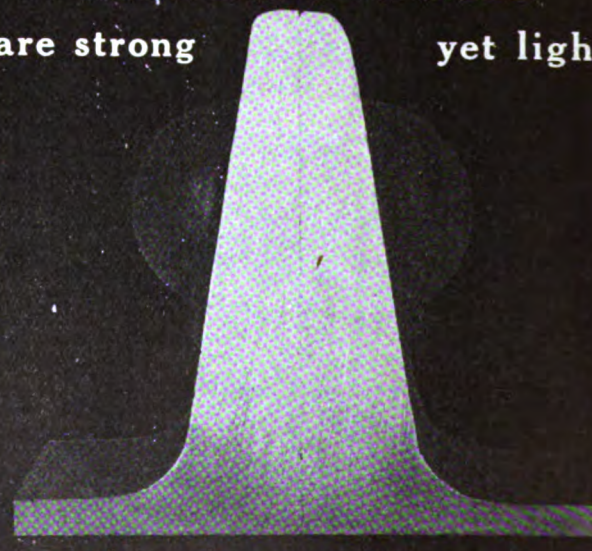

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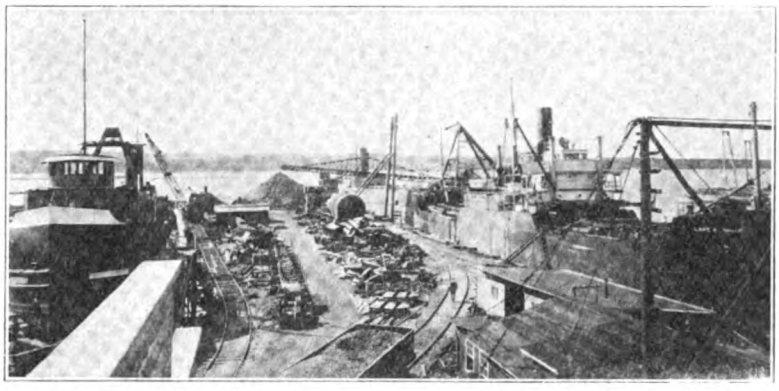

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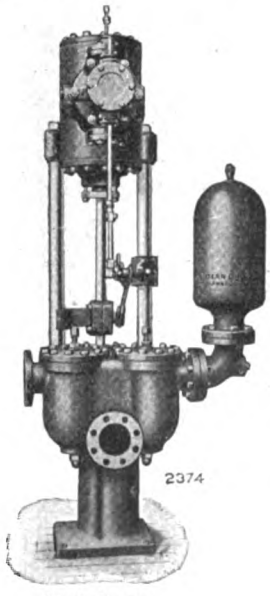

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On a fuel consumption of 102 tons of oil per day, she maintains an average speed of 16 knots per hour, with 9500 i.hp., or at the rate of 1 lb. of oil per i. hp. per hr. for all purposes.

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WHITING'S — ADAMS

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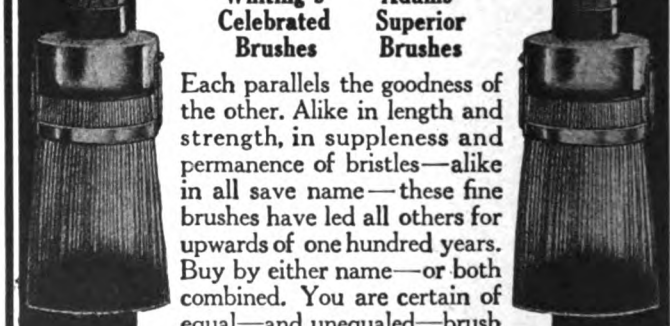

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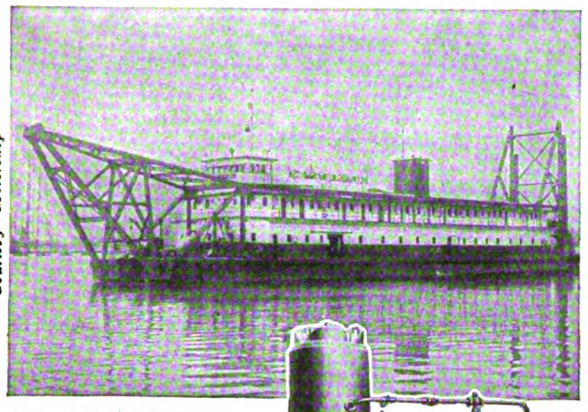

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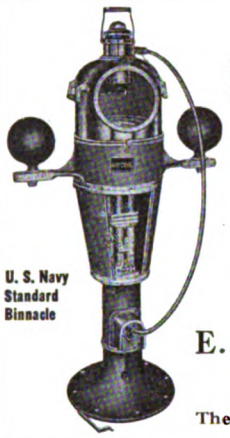

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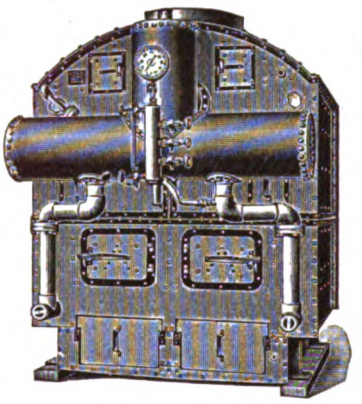

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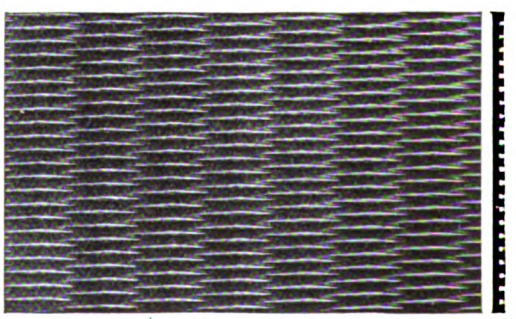

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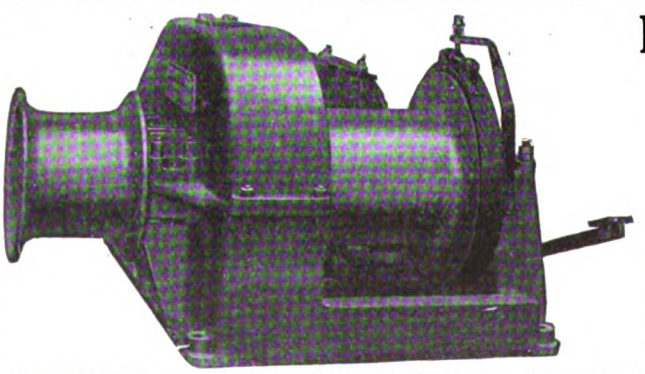

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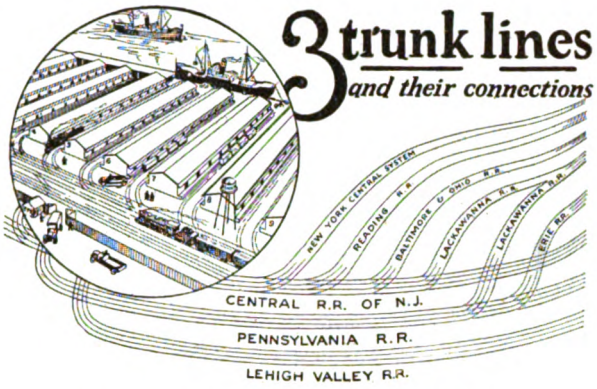

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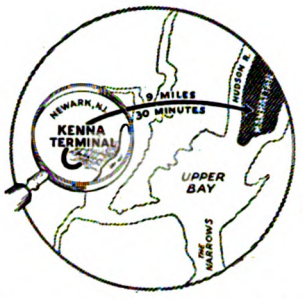

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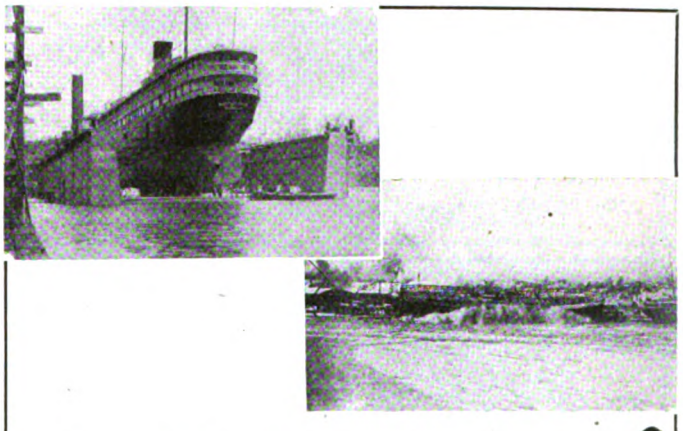

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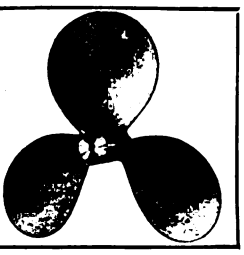

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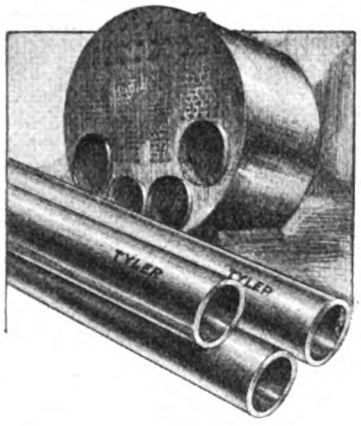

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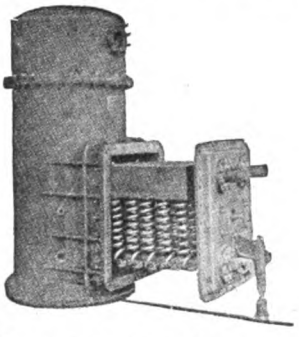

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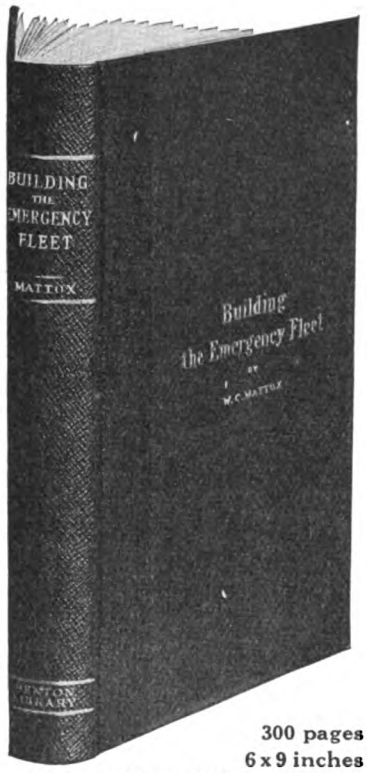

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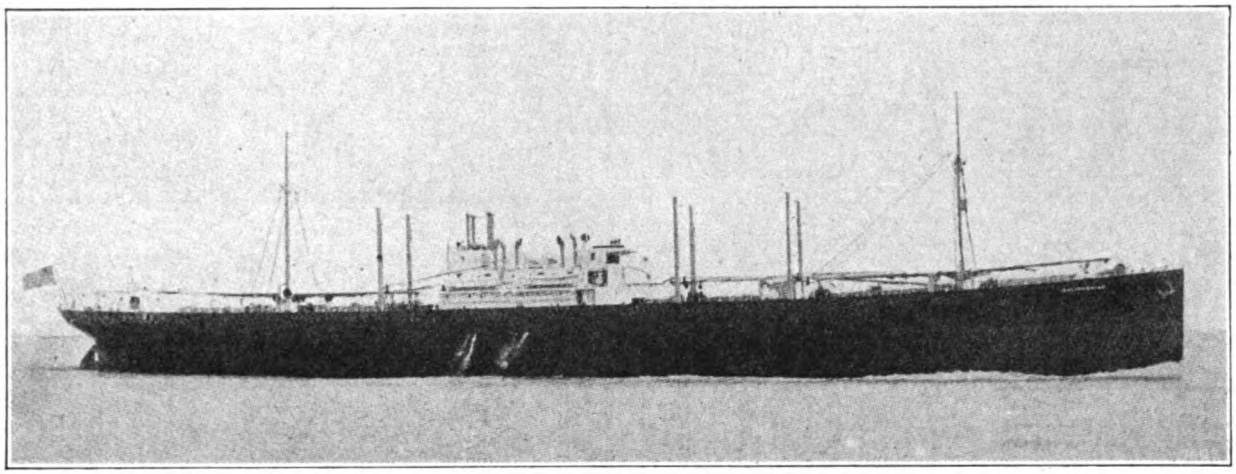

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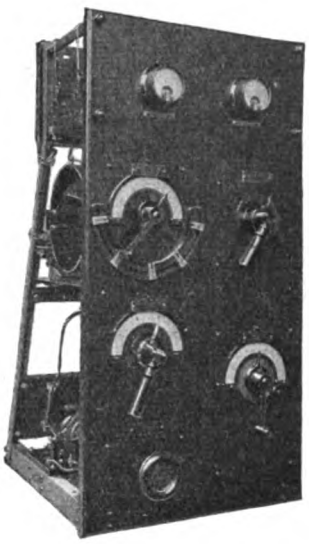

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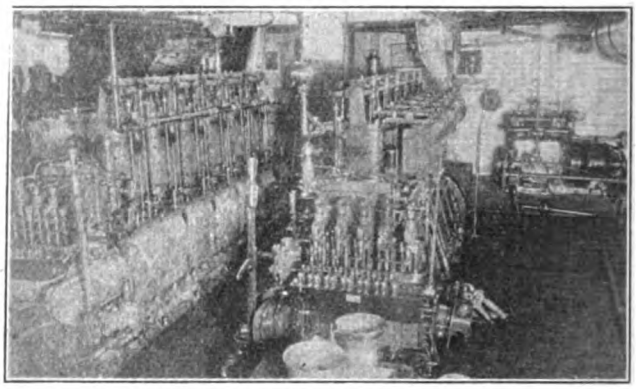

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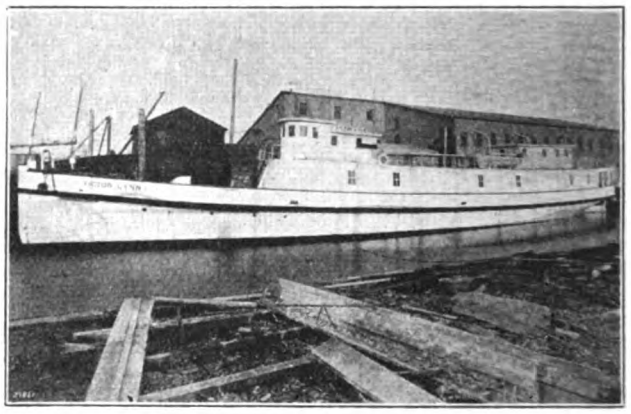

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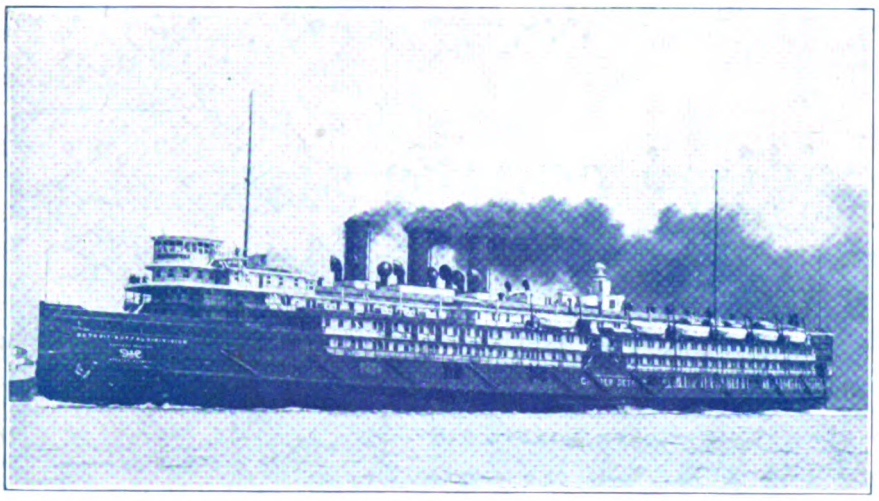

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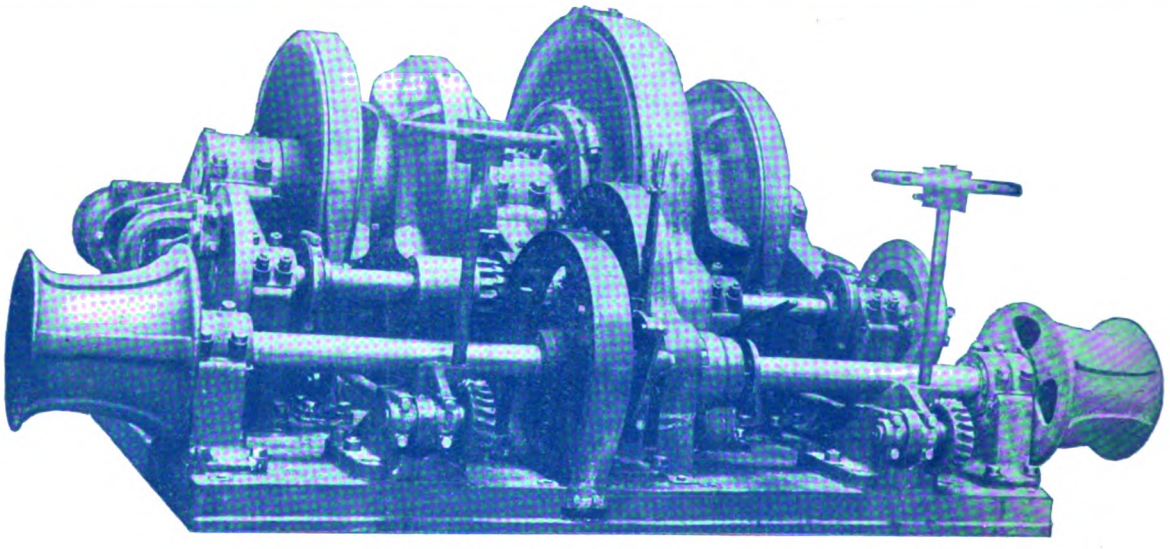

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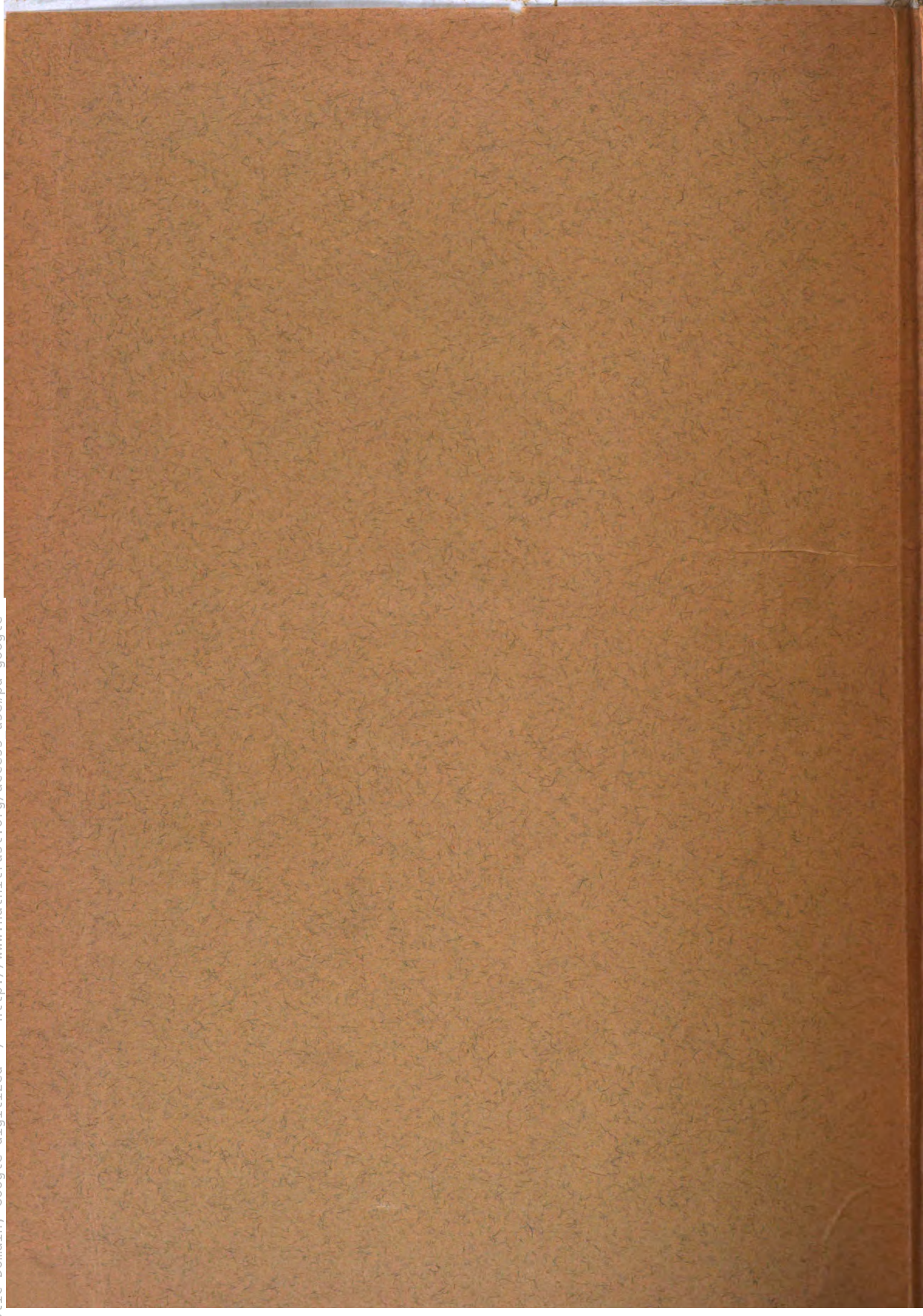

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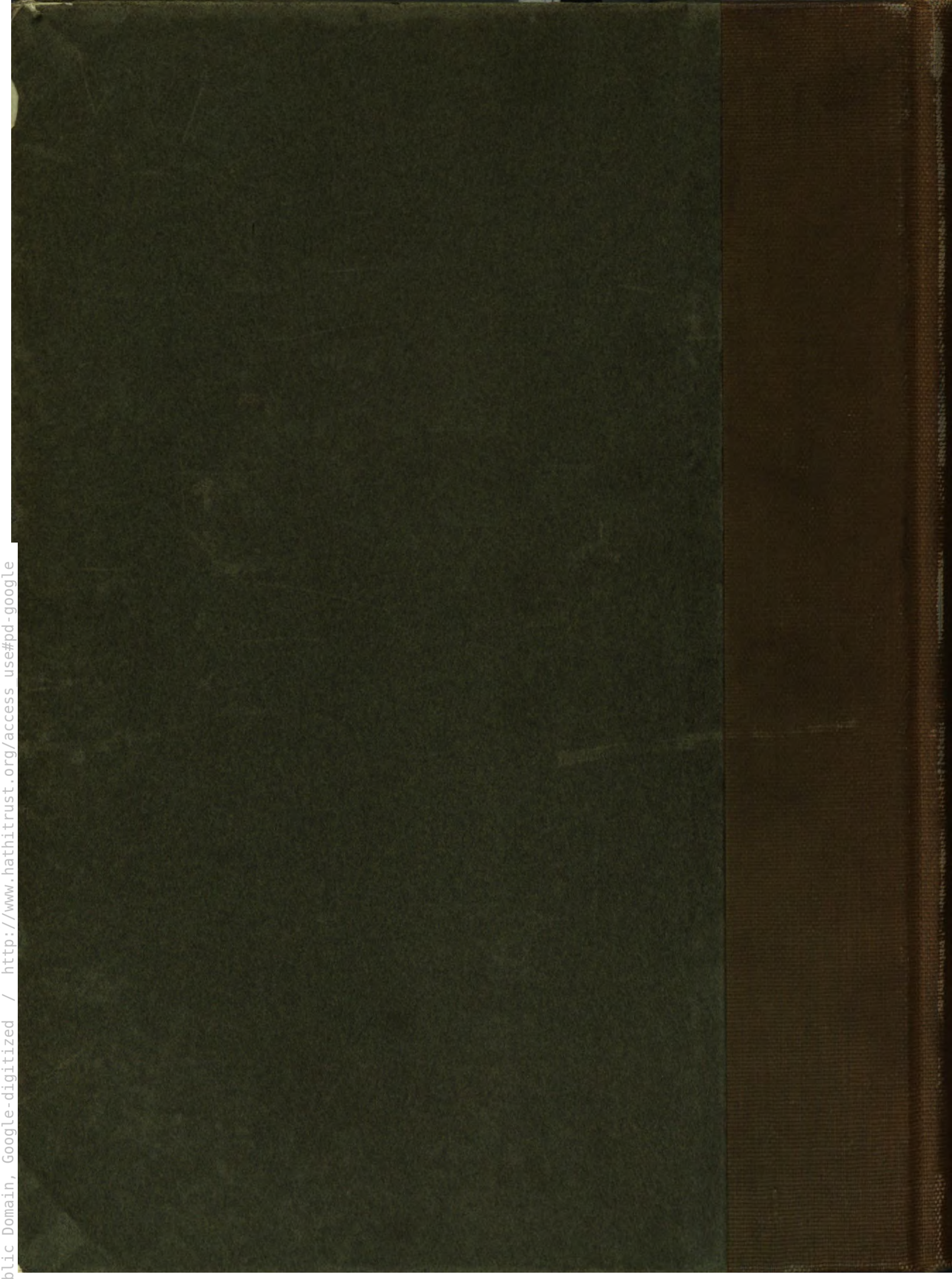

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